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A Remarkable Textbook

Barber's First Course in General Science

By FREDERICK D. BARBER, Professor of Physics in the Illinois State Normal University, MERTON L. FULLER, Lecturer on Meteorology in the Bradley Polytechnic Institute, JOHN L. PRICER, Professor of Biology in the Illinois State Normal University, and HOWARD W. ADAMS, Professor of Chemistry in the same. vii+588 pp. of text. 12mo. $1.25.

A recent notable endorsement of this book occurred in Minneapolis. A Committee on General Science, representing each High School in the city, was asked to outline a course in Science for first year High School. After making the outline they considered the textbook situation. In this regard, the Committee reports as follows:

"We feel that, in Science, a book for first year High School use should be simple in language, should begin without presupposing too much knowledge on the part of the student, should have an abundance of good pictures and plenty of material to choose from.

Barber's *First Course in General Science* seems to us to best meet these requirements and in addition it suggests materials for home experiments requiring no unusual apparatus, and requires no scientific measurements during the course. We recommend its adoption."

Other Interesting Opinions on the Book Follow:

SCHOOL SCIENCE AND MATHEMATICS:—It is one of the very best books on general science that have ever been published. The biological as well as the physical side of the subject is treated with great fairness. There is more material in the text than can be well used in one year's work on the subject. This is, however, a good fault, as it gives the instructor a wide range of subjects. The book is written in a style which will at once command not only the attention of the teacher, but that of the pupil as well. It is interesting from cover to cover. Many new and ingenious features are presented. The drawings and halftones have been selected for the purpose of illustrating points in the text, as well as for the purpose of attracting the pupil and holding his attention. There are 375 of these illustrations. There is no end to the good things which might be said concerning this volume, and the advice of the writer to any school board about to adopt a text in general science is to become thoroughly familiar with this book before making a final decision.

WALTER BARR, *Keokuk, Iowa*:—Today when I showed Barber's Science to the manager and department heads of the Mississippi River Power Co., including probably the best engineers of America possible to assemble accidentally as a group, the exclamation around the table was: "If we only could have had a book like this when we were in school." Something similar in my own mind caused me to determine to give the book to my own son altho he is in only the eighth grade.

G. M. WILSON, *Iowa State College*:—I have not been particularly favorable to the general science idea, but I am satisfied now that this was due to the kind of texts which came to my attention and the way it happened to be handled in places where I had knowledge of its teaching. I am satisfied that Professor Barber, in this volume, has the work started on the right idea. It is meant to be useful, practical material closely connected with explanation of every day affairs. It seems to me an unusual contribution along this line. It will mean, of course, that others will follow, and that we may hope to have general science work put on such a practical basis that it will win a permanent place in the schools.

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THE SCIENTIFIC MONTHLY

APRIL, 1919

PAPERS PRESENTED BEFORE THE SECTION OF SOCIAL AND ECONOMIC SCIENCE OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE[1]

FRANCE AFTER THE WAR

By the Honorable EDOUARD DE BILLY

FRENCH HIGH COMMISSION

I

IN order to discover what a man will be in the future, it is necessary to investigate first what this man has been in the past. Then, a study of the new environment in which he stands may enable one to determine, with sufficient accuracy, how he may develop.

The same method applies to peoples. I have been asked to address you on "France after the War." And I feel very deeply the responsibility which lies on me in discussing such a question before a body as representative and competent as the American Association for the Advancement of Science.

May I venture to answer your request by trying, in a few words, first to summarize what, from the point of view of the scholar in economic sciences, France has been in the immediate past, and, second, to give you some data which will allow you to realize in what circumstances she stands when, at the close of these fifty-one months of war, she has to face the problems of reconstruction, and that of restarting her economic, industrial and commercial life.

[1] Baltimore meeting, December, 1918, arranged by the Secretary of the Section, Seymour C. Loomis.

II

In this country, everything changes so rapidly, and the growth has been so enormous, that most of the activity and attention are focused on present problems, and there is in many minds some forgetfulness of the past. Moreover, the energies of most of the citizens have been, justly, so devoted to the development of their own country that they have given, until these last few years, but little attention to the activities of other nations on the other side of the water. The consequence is that many Americans do not realize what was the position of France in the middle of the nineteenth century; and many of you who are now listening to me will, I am sure, be rather skeptical if I tell you that, during this period, France was one of the most enterprising nations of the world, and developed, in the economic field, the same spirit of self-confidence and audacity that her preceding generation had shown to the world on the battlefields, during the Napoleonic wars.

Yet this is the plain truth. During the years from 1850 to 1870, which was the period of the first development of railroads, French engineers were not content with constructing the railway systems of their own country. In Austria, in Italy, in Spain, railways were built by French engineers, with French capital. This was also done, a little later, in Russia. Harbors and great public works were also contracted for and built by French firms, led by French engineers.

The Suez Canal was, I think, the greatest French success of that period. It was planned by a great Frenchman, who found, with the help of the French government, French capital to subscribe to the company, and French contractors and French engineers to do the work. May I add that, in this development of French industrial life, the part taken by Alsace and the Alsatians was most prominent.

The war of 1870–71 was, for my country, the greatest blow she had ever received. We were, perhaps, at that time, too proud of our achievements. The fact is that the defeat not only deprived us of two provinces which were as much a part of France as any other French land; in addition, it destroyed, in the minds of those who had been defeated, the spirit of self-confidence, which is as necessary to any human enterprise as is fire to make an engine work.

The recovery of France after this disaster was rapid. I may say that it amazed the world. It angered Bismarck, who thought he had annihilated France forever, and who, had it not been for the personal intervention of Queen Victoria, would

have attacked her again in 1875, to crush her to death. But we recovered with the timorous minds of men who, in the course of a successful development, have undergone an unforeseen and terrible disaster. The Frenchmen whom you have known during the last forty years were the sons of men who had been badly defeated. They bore on their shoulders a burden which prevented them from marching lightly to success.

However, two new fields of activity were gradually opened to our generation: one inside our country, the other in far distant fields.

The German negotiators, in 1871, had fixed the boundary so as to annex to Germany all that was then known of the iron deposits of Lorraine. The geologists of that time had a theory that only the outcrops of these enormous layers had a sufficient percentage of iron to be of any industrial use; and these outcrops became German. After a few years, French engineers started a series of borings which showed that, to a greater depth than had been realized, the deposits yielded ore of good workable quality. This was the origin of the development of our iron industry in the east of France. While the production of pig iron in France was 960,000 tons in 1890, it had reached 5,311,000 tons in 1913; and the output of iron ore had reached 23,300,000 tons. This was a success which did not fail to produce its fruit. When the war broke out in 1914, two regions in France—the north, thanks to the coal basin, and the east, thanks to the iron—had been for several years developing in a remarkable manner, new works and factories being built, and a new generation arising, believing in its own possibilities and success.

Some of these young men, anxious to find a wider field of development, had gone to unknown lands, and there they met with greater success and attained a greater sense of self-confidence. Bismarck, who did not care for colonies for himself and only wanted to protect and develop the empire which he had built, thought it very wise to encourage France to enter upon a colonial policy. He was sure it would weaken her, and that besides it would divert her thoughts from her eastern frontier, which Germany wanted to make, on her own side, so utterly impregnable that France would never dream of touching it.

Very wise was Bismarck indeed, but for the benefit of France, and not for that of Germany. The French who went to Indo-China, to Madagascar, to Congo, to Tunis, to Morocco, rapidly discovered, in these new countries, that their endeavors

were crowned with success; their energies were exalted, while trade and agriculture developed. They also learned to fight, to subdue dangerous rebellions, and (which has been their most remarkable achievement) they succeeded in making loyal to France, by good administration, those whom they had been obliged to fight. Thus these colonies, instead of weakening France, have been to her a source of moral, economic and military strength. As has been said of Morocco, the colonies have been the anvil on which France forged her sword.

Such was the situation, improving rapidly during the preceding few years, when the war broke out, and found France ready to meet all emergencies.

Next to the military problem, the industrial problem has been, during the last four and a half years, the most difficult to attend to. Our country, deprived of its coal- and iron-producing districts, having almost no further raw materials of its own, and most of its big factories and iron works in the hands of the enemy, had to meet the most extravagant demand for guns, ammunition, powder, explosives, and all sorts of war material. You know what has been achieved. You know to what extent new factories have been erected and equipped, every step being taken in order to make use of the supplies of coal and steel delivered by Great Britain, and of steel, machinery and supplies of every kind sent to France by the United States.

A few figures will illustrate the results obtained. In 1916, the output of our war factories in 75 cm. caliber shells, was 13,000. In 1917, we were able to manufacture 200,000 rounds per day, besides 100,000 rounds of heavier caliber. The monthly production of sulphuric acid, which previous to the war did not amount to 5,400 tons a month, amounted, before the end of the war, to nearly 100,000 tons. The equipment of our factories was such that besides our own needs in guns and air planes, we were able to furnish them to the armies that were fighting with us. General Pershing's report shows to what extent the American divisions were equipped along these lines with material manufactured in French factories by French workmen, from raw materials coming from the United States, using coal received from Great Britain.

This could not have been achieved if the French nation had not been, in August, 1914, in a quite different spirit from that indicated by the figures of her trade during the twenty previous years. Victory will give the development which was already noticeable, a definite and powerful start. In the joy of this

immense success, the clouds of the defeat of years gone by will be, as it were, scattered by a healthy breeze. Self-confidence, which was growing slowly, will be exalted, and the rising generation of France will appear with the same spirit of enterprise that animated their grandfathers of the eighteen-sixties. They will need it, for the problem they have to face is most difficult.

III

It has often been said, and it is true, that France will have gained much by this war. She has recovered the two provinces which she lost in 1871, which means that the number of French people is increased by nearly two million men and women of solid character and absolute devotedness. They have shown this by their stubborn opposition, during forty-four years, to their annexation to Germany. They are people also of sound intelligence and good business-like qualities, as you may judge from those Alsatians who, having emigrated to this country and become naturalized Americans, have prospered so well.

The regaining of these provinces also means the recovery of the good agricultural land of the plains between the Vosges and the Rhine, and the addition to the mineral resources of France of the iron deposits of the Germany-annexed portion of Lorraine, and of the potash deposits lately discovered in upper Alsace.

May I add that this victory also means for us the safety of our eastern frontier, the removal of the danger which, to a certain extent, handicapped the development of our industry in that region, because we knew that the Germans were anxious to invade our frontier territories in order to make theirs, as they had hoped to do in 1871, the whole of our iron deposits.

These are precious assets. But, on the other hand, let us consider some of the terrible aspects of the situation in which now finds itself the country that, for four and a half years, has been the battlefield of our coalition. Your war, and England's war, as well as France's war, have been fought in Belgium and in France. Our army had to stand the first rush of the invasion, while the other armies were being prepared. And, however wonderful was the effort of the British, some months later, and afterward that of the American army, the front held by the French has never been less than two thirds of the total line from the North Sea to the Swiss border. Thus our losses were greater than those of any other army. A part of our country has been invaded, its population treated as slaves, their

houses looted, their factories destroyed; while on the fighting line the soil of France has been plowed so deep by shells that no agriculture is possible. Some sentimental people have been lamenting over France as bled white. Nonsense! France is not bled white. She has men filled with renewed and splendid energy. But here she stands, facing the problem of recuperating her place in the economic markets of the world, with a part of her industrial and agricultural power destroyed, and with her men killed and maimed to a number that exceeds imagination. May I give you some figures on these subjects?

Our *losses in men*, as you know, have been tremendous. Besides 1,300,000 of our young men who were killed or died of wounds or illness in this war, we have a great number whose physical ability has been seriously impaired. Add to these the number of our prisoners who came back in such a terrible physical condition as to render them unfit for any sustained effort, and we come to a total loss, for the work to be started in France, of about two and a half million men, who were mostly among the youngest, ablest and strongest, as well as the most spirited, of our people—a terrible loss for a country of less than forty million inhabitants.

Our *agriculture* has perhaps suffered more heavily if possible than any other branch of our economic activity.

The following figures will give you a vivid picture of the losses sustained.

	July, 1914.	March, 1918.
Cattle	14,788,000 Head	12,443,000 Head
Sheep	16,213,000	10,587,000
Pigs	7,048,000	4,200,000
Horses	3,231,000	2,283,000
Total	41,280,000	29,513,000

The difference between the two totals, 11,767,000 heads, represents the loss of France during the war.

The number of *cattle*, which in England increased by 4 per cent., has in France decreased by 18 per cent. The production of *milk* has decreased by 63 per cent. The number of sheep has decreased in France by 38 per cent. The number of pigs has decreased by 40 per cent. May I, in addition to these figures, mention that, as regards crops, the soil of France is also in an impoverished condition, having been, for four years, mostly tilled by very young and elderly men, below or above the age of military service, and by women, whose physical strength was not equal to the splendid spirit they have shown in this war.

As regards *industry*, you will realize the terrible blow the

war has given to that part of the economic life of France when you know that there were 26,000 mills or factories in that portion of our territory occupied by the Germans, and that most of them have been destroyed or stripped of all their machinery. The invaded districts do not comprise more than 7 per cent. of the whole territory of France, but they represented 30 per cent. of the industrial output of our country, and 25 per cent. of the total returns of taxes. From these districts came 90 per cent. of our iron ore; 83 per cent. of our pig iron, as 95 blast furnaces, out of a total of 127, were in the invaded regions; 75 per cent. of our steel; 70 per cent. of our coal; 94 per cent. of our combed wool; 90 per cent. of our flax; 65 per cent. of our sugar.

The part of France occupied by the Germans produced four fifths of our woolens, and included 80 per cent. of our weaving industry. During the four years of their occupation, the Germans wilfully and methodically destroyed all that was in their power to destroy. They not only requisitioned as at Roubaix and Tourcoing, where they commandeered stocks of wool worth 300 million francs. Requisition is one of the rights of war, and of that we can not complain. But what is against all right, and against all international law and agreement, is the destruction and stealing of property; and this is what the Germans did.

As to our cotton industry in the north, the German invasion has cost us 2,100,000 spindles and 13,200 looms, and in the east, 125,000 spindles and 6,905 looms. This robbery was not carried on in cotton and wool factories alone. Iron works, machine works also, were looted, the useful equipment, engines, rolling mills, machine tools, even structural steel, having been methodically taken away and set to work again in the iron works in Germany. Mines were flooded, the surface plants dynamited, the workmen's dwellings destroyed.

In a word, the Germans did their best to annihilate the power of industrial production in the invaded districts and prevent these regions from resuming, for many years to come, their place in the market of the world.

The industry of transportation has also heavily suffered from the war. The wear and tear on the rolling stock of our railroads has been intense. In the invaded regions, the tracks were badly injured during the German retirement.

As to our *shipping*, the tonnage of our merchant marine in 1914 amounted to 2,285,728 tons. We have lost 757,900 tons

through the submarine or other warfare, and 115,000 tons through sea accidents.

Contrary to what has happened in other more fortunate countries, France during the war had neither the labor nor the raw materials to build new ships. The machine shops of our shipyards were used to manufacture ammunition, tanks and other war material; you can draw your own conclusion. We have thus lost 872,000 tons. Taking into account the small amount of 117,000 tons built during the war and a few ships which we have been able to buy, our tonnage had fallen to 1,615,000 tons on April 1, 1918.

Our *commerce* too has suffered most heavily, practically all of our factories being turned to war work, and all our peace-time industries being at a standstill.

Here are the figures for 1913, before the war:

Imports		Exports	
Francs.	8,421,300,000	Francs.	6,880,200,000

which compare with the figures for the year 1917:

Imports		Exports	
Francs.	16,311,975,000	Francs.	4,095,000,000

And last, let us have a glance at the financial situation of the country.

The war will have cost France, up to December 31, 1918, 130 billion francs, this figure being the total of appropriations granted by the French Parliament for military and exceptional expenses during the war.

If you add to this 11 billion for normal expenses, and 17 billion for interest on the public debt, you see that France has, during those 53 months, spent 158 billion francs.

To meet these expenses, France had taxes and loans. Taxes have been raised to an unprecedented level. While in 1914 the total of our national budget was slightly above four billion francs, the taxes will have given in 1918, without the invaded regions, which were, as you know, by far the richest, over nine billion francs. In 1917, the civilian population in France paid in taxes 38 dollars per capita, as compared with nine dollars paid in 1906 by Americans.

France, before the war, had a public debt of thirty-four billion francs. The interior debt has increased, during the war, by over 100 billions, the last public loan having produced 27 billions. We have received from Great Britain and the United States, loans amounting to 25 billion francs.

So that France starts on this new period of her history with a burden of public debt increased, on account of the war, by over 125 billion francs, a figure which will certainly be further increased in order to liquidate the war expenses.

I had to give you these figures in order to make you realize the seriousness of the situation in which France stands. We are all ready to face our problems with the utmost confidence and will to succeed. But we are aware that they are grave problems.

First, while the whole world jumps into peace work and resumes trade, we have a part of our territory which is unable to produce. We can not maintain our place in the markets of the world. We can not get our own supply of coal. We are obliged to maintain restrictions in order to protect our industry while in course of rehabilitation, and as long as a normal order of things is not reestablished.

Secondly, in order to get from outside markets the raw materials and finished products we need, we depend largely upon foreign ships.

Thirdly, trade and shipping are closely connected. We have to rebuild our foreign trade, which has been stopped during the war on account of lack of tonnage and lack of industrial production. In order to start again, we need ships, and our commercial fleet is reduced to the figures I quoted to you a while ago.

Fourthly, one of our best assets is our colonial empire. We have pacified and established our rule in vast countries, whose natural supplies are enormous, and whose populations are willing to work, and are loyal, as they have shown by giving us a total contribution of 918,000 men during the war, of which 680,000 were fighters, and 238,000 workmen in our war factories. With her possessions, France is actually the fourth of the great countries of the world as regards territory, the fifth as regards population. But we must develop these possessions. In order to perform that duty, we want ships. And again, our merchant fleet has fallen to almost nothing.

So, in order to fulfill her duties, France has two great objects to achieve: to rehabilitate her devastated regions, and to build ships. If her friends want to help her during peace as they have helped her during the war, they have two means of assisting her to regain rapidly, from an economic point of view, her place in the society of nations: helping her to rebuild what has been destroyed by the Germans, and helping her to construct, or to purchase, ships.

RECONSTRUCTION IN GREAT BRITAIN FOLLOWING THE WAR

By Sir H. BABINGTON SMITH, K.C.B.

ASSISTANT COMMISSIONER FOR GREAT BRITAIN IN THE UNITED STATES OF AMERICA

THE word "reconstruction" has a very wide application. Not only must the destructive processes of the last four years be reversed, but it is hardly too much to say that the whole framework of civilization is in need of reconstruction after the war. The word is used in several different senses which it will be convenient to distinguish.

1. Reconstruction, in its most limited sense, applies to the reparation of actual damage done by the war. This includes the rebuilding of houses, villages and towns which have been destroyed; the replacement of industrial plants and machinery which have been destroyed or carried off; the restoration of mines, railways, canals, roads, woods, orchards and so forth, and of the surface of the soil itself.

This problem is a large and urgent one, but its primary interest is for those nations on whose territory the land war has been waged. Except in one particular, with which I shall deal immediately, Great Britain is interested, not directly, as having suffered such damage, except in a minor degree; but indirectly, in seeing that all possible measures are taken to ensure that those allied countries which have been devastated shall be restored as completely and rapidly as possible, and in contributing, in such ways as may be possible, to the supply of materials or transport for that purpose.

It is in shipping especially that Great Britain has suffered losses, owing to the operation of German submarines without any restriction of law or humanity. The British losses of mercantile shipping from the beginning of the war up to October 31, 1918, from enemy action and marine risk amounted to 9,032,000 gross tons. The additions to British mercantile tonnage in the same period from new construction, from tonnage purchased abroad, and from enemy tonnage captured, amounted to 5,589,000 gross tons, leaving a net reduction in British tonnage of 3,443,000 tons, mainly due to hostile action.

The world's losses, excluding enemy countries, amounted to just over 15,000,000 tons. The new construction was 10,849,000 tons, and the enemy tonnage captured 2,393,000 tons, making together 13,242,000 tons, and leaving a net reduction

of 1,811,000 tons. It will be seen that while British tonnage has lost 3,443,000 tons, the rest of the non-enemy world has actually gained on balance 1,632,000 tons.

There will undoubtedly be a claim upon all existing enemy tonnage to make good the marine losses of the Allies from illegal enemy action; but as the total German tonnage before the war was under 5,000,000 gross tons, and the tonnage possessed by other enemy countries was very much less than that, and, as a considerable part of this has already been captured or requisitioned by the Allies or America, it is obvious that only a part of the losses can be made good in this way.

British mercantile shipbuilding during the war has been heavily handicapped by the demands of naval shipbuilding, by the withdrawal of labor for military service, and by the great amount of repair work that was required both for the British and American Navies and the merchant marine. Out of 381,000 men, who were engaged shortly before the end of the war in shipbuilding, in marine engineering, and in repairs, only 116,000, or considerably less than one third, were engaged in new merchant-ship work. A considerable amount of repair and refitting will still be required after the war; but with the return of the men from the army, and with the cessation of the urgent needs for naval shipbuilding, it may be anticipated that the outturn of new ships will be rapidly increased. The tonnage completed in the year ending October 31, 1918, was 1,600,000 gross tons, and it is anticipated that, when peace conditions are reestablished, the annual output from British yards may reach 3,000,000 tons. It will, however, take some time before this rate is attained. Apart from any contribution from German shipping, it will probably be at least eighteen months, perhaps longer, before the destruction of war is made good; and it will, of course, be considerably longer before the normal increase which would have taken place in the last four and a half years, and the normal replacement of worn-out ships, will have been overtaken. During that time, the output of American yards, and of the yards of other countries will continue at a rapid rate; and, unless sane and long views are taken and suitable measures concerted, it is probable that in three or four years' time the world's shipping will be largely in excess of the world's needs, with disastrous results for shipowners and shipbuilders.

2. In its second meaning, the word "reconstruction" comprises the whole process of turning over from war to peace; the

process in fact of demobilization in its widest sense—military, naval, industrial and financial.

Military and naval demobilization can only be carried out partially while we are awaiting the final conclusion of peace. During the period of the armistice and of the peace conference, armies, and to some extent navies must remain upon a war footing; and, even after the final signature and ratification of the peace treaty, or treaties, it is possible that considerable forces may be required for the occupation of territories, pending the execution of the conditions of peace, and for purposes of international police.

Careful study has been given in Great Britain to the problems of demobilization. During the present period of partial demobilization, steps are being taken to release as many as possible of the men whose services are required in preparation for general demobilization. Such men are, in the first place, those described as *demobilizers*—that is to say, men whose services will be required for working the mechanism of demobilization—and secondly, *pivotal* men, that is men who are necessary for the reestablishment of industry on a peace basis, and for preparing the way for the reemployment and reabsorption of labor. Arrangements are also being made for regulating the priority of release, when the general demobilization starts. This priority will depend upon a number of factors. Men for whom a job is definitely waiting will be released first; priority being given at the same time to those trades—such as mining, ship-building, transport, building materials, agricultural machinery, etc.—for which there is a specially urgent demand, since their activity is a condition precedent to the full activity of other industries. Consideration will also be given to the claims of men with the longest service in the army, married men, and men, who, on the ground of special hardship, deserve early release. A furlough of twenty-eight days, with pay and ration allowance will be given to each man on his release.

A comprehensive scheme has also been drawn up for giving special intensive educational training to men who, owing to the interruption caused by military service, have lost touch with their particular professions and businesses, and measures have been taken for giving vocational training to men who have been maimed, or otherwise incapacitated for their former employment.

The demobilization of civilian workers, who have been employed on munitions work, will take place at an earlier date

than the military demobilization, and will require equally careful organization. Arrangements were made to prevent, as far as possible, any immediate general discharge of munitions workers, upon the cessation of hostilities, and steps were taken to facilitate, by free transport and other measures, the return of munition workers to civilian employment. This task is aided by the fact that sixty per cent. of the persons employed in munitions industries were at work, for war purposes, upon industries in which they would, in the ordinary circumstances, be working for peace purposes; but a special difficulty arises from the large quantity of female labor which has entered industry, the munitions industry in particular, during the war in order to meet the deficiency of male labor.

However good the arrangements may be, it is certain that in many cases the individual soldier or civilian may have to pass through a period of unemployment before he is reabsorbed in peace industry. To provide for this, a special unemployment donation will be given for a maximum period of thirteen weeks in the case of the civilian worker, and twenty-six weeks in the case of the soldier. This donation is payable during any period of actual unemployment occurring in the first year after discharge in the case of the soldier, and in the first six months in the case of the civilian, provided that the claimant has endeavored to obtain employment through the labor exchanges.

Another process which forms part of demobilization, is the disposal of surplus property. There is a vast quantity of property, both raw materials and finished articles, in use or in reserve for military purposes. The value of such property is probably not less than two and a half billion dollars. In the interest of the tax payer it is necessary to guard against improvident selling; and it is also desirable to avoid the dislocation of trade which would result from too hasty a disposal of this property. It is possible, also, that organized schemes for the use of surplus property may be desirable; for instance, that the trucks and other automobiles which are no longer required for military purposes, should be used to set up schemes for rural transport for the benefit of agriculture. A special department in close relationship to the Ministry of Munitions has been set up to deal with this problem, and to dispose of all kinds of surplus property.

I have spoken of the industrial demobilization so far as it affects labor, but there is another side to it also—the question of the utilization of plants which have been created for the manufacture of munitions, or which have been specially modi-

fied for that purpose. In some cases the transition is easy. One factory, at least, which on November 11 was engaged on pure munition work, started on commercial work of a totally different kind on November 12. Textile factories, which have been making cloth for uniforms, or other materials for military use, can readily turn over to peace requirements. If the work has to be different in kind, the transition takes longer to effect. The nature of the changes in contemplation is shown by the following specimens from reports received by the Ministry of Munitions. Some manufacturers who have been producing aero-engines are going to make engines for motor cars, or for small launches. One firm, which has been manufacturing fuses, is turning over to the manufacture of electric fittings, another to motor accessories. In other cases, the change is more radical. An aeroplane factory will turn to household furniture and heavy toys. A firm at Newcastle-on-Tyne, which has been making guns will build locomotives and will employ 5,000 hands. Several munition firms are taking up the manufacture of hosiery needles and hosiery bearded needles, which in pre-war days were almost entirely imported from Germany. Other munition firms are preparing to make dairy utensils, boot machinery, fountain pens, typewriters and so forth.

On the whole, the problem is not so difficult as that which had to be faced in the early days of the war. The change from peace production to war production was a change from the known to the unknown. The return to peace again means going back in most cases to the known.

All these industries will require raw materials. The war has made it necessary for the government to assume control of stocks and supplies of almost all raw materials. It will not be possible to relax this control all at once, and the system of priority permits, and of export and import licenses may have to be continued for a time, in order to secure fairness in distribution, and in order that our obligations to the allied countries may be observed. The object will be to remove restrictions and regulations as soon as it is practicable to do so.

The problem of "financial reconstruction" may be divided into three branches, which are to some extent mutually interdependent, viz., national finance, currency and exchange.

The total expenditure of the United Kingdom from the beginning of the war to the present time amounts approximately to nine billion pounds (45 billion dollars), of which one quarter has been raised by revenue and three quarters by borrowing. Translating, for convenience, sterling into dollars,

the national debt at the beginning of the war was three and a half billion dollars. It is now more than ten times that amount—thirty-six billion dollars. Against this, however, must be set various assets. We have advanced to the British Dominions more than one billion, to the Allies nearly seven and a half billions, making a total of eight and a half billions. A part, also, of the expenditure is recoverable; for instance, expenditure on food and raw materials which will be sold to the public, and the value of surplus stores, factories, etc. The ultimate value both of the advances and of the other assets is very difficult to estimate, but taking advances and realizable assets together, it is probably not less than ten billion dollars. This will make the net national liabilities at the end of the war, amount to something like 25 billion dollars. If six per cent. be allowed on this sum, in order to provide a substantial sinking fund as well as interest, the service of the debt will cost one and a half billion dollars per annum. The pre-war budget amounted to about 850 million dollars per annum, and to this must be added a large sum, perhaps half a billion, for pensions and other charges arising out of the war, and for necessary increases of expenditure. It may be guessed, therefore, that the annual post-war budget will be not less than two and three fourth billion dollars. There can be no doubt as to the ability of the United Kingdom to meet this charge when its energies are applied to peaceful production, but it will involve very heavy taxation, and one of the most difficult problems of reconstruction will be how to raise the necessary sum with justice to all portions of the community, and without placing burdens upon industry and commerce so heavy as to repress enterprise.

The various questions arising in connection with currency and the foreign exchanges during the period of reconstruction have recently been examined by a committee of experienced bankers and business men under the chairmanship of Lord Cunliffe, the late governor of the Bank of England. It appears from this Committee's report that the total issue of Bank of England notes and currency notes on July 10, 1918, was £343,000,000, of which £94,000,000 was covered by gold coin and bullion, and £249,000,000 represented the fiduciary issue. On June 30, 1914, the note issue amounted only to £57,000,000. There had thus been an increase of £256,000,000 in the note issue; but this increase has been accompanied by a reduction of £83,000,000 in the amount of gold coin in public circulation. It would occupy too much of your time if I were to reproduce the committee's analysis of the causes which have brought

about this great expansion of legal tender currency. I may, however, briefly summarize their conclusions:

They consider it imperative that, after the war, the conditions necessary to the maintenance of an effective gold standard should be restored without delay. The first condition is that government borrowing should cease as soon as possible, and that an adequate sinking fund should be provided out of revenue so that there may be a regular annual reduction of capital liabilities. They recommend that the present currency notes should be gradually withdrawn and that the note issue should, in future, as in the past, be entirely in the hands of the Bank of England, subject to the existing rules of the Bank Charter Act, viz., that there should be a fixed fiduciary issue beyond which notes should only be issued in exchange for gold. They recommend that the gold reserves of the country should be held by the Bank of England, and that the amount to be aimed at should be in the first instance £150,000,000.

The committee would rely upon the operation of the Bank of England's discount rate for checking any outflow of gold, and for bringing, as in the past, the necessary regulating influence to bear on the foreign exchanges.

It must be borne in mind, however, that the maintenance of the foreign exchanges,—that is, of our ability to meet payments abroad,—depends primarily upon the balance of trade, and that the effect of a high discount rate in attracting floating balances is only a temporary remedy, except in so far as its indirect effects react upon the currents of trade. The position of the United Kingdom in respect of the trade balance has been materially altered for the worse by the war. Securities to a large amount have been sold in America in order to provide funds for purchases of munitions, food and raw materials, with the result that the interest on these securities, which contributed to the favorable balance between the United Kingdom and America, will no longer be remitted to London. Loans have been contracted in America and elsewhere, and the interest on these loans will have to be paid. The British Mercantile Marine has been depleted, and the amount receivable from other countries for freight will be proportionately diminished. It results from these causes that if an adverse balance of trade is to be averted, the United Kingdom must either export more, or import less, or both. In order to meet our obligations it will be necessary that every effort should be strained to increase production, both agricultural and industrial, and to diminish all unnecessary consumption.

If Britain is compelled to use every effort to increase to the utmost the industrial and agricultural production of the British Isles, and so render herself independent as far as possible of supplies from abroad, it must be remembered that one main object of this effort is the maintenance of our ability to pay our debts to other countries, and, in particular, to America. But the resumption even of normal production, and of the normal export trade from the United Kingdom must take time; and, in the interval purchases from the United States to the full amount required can only be made possible by the extension of credit in some form.

3. In the third and widest sense, "reconstruction" includes the solution of a large number of questions affecting the future welfare of the world to which the war has given special urgency and importance. Even to touch upon these would take me too far. International questions of this character form the greater part of the subject matter of the peace negotiations. Perhaps the most vital in the internal sphere is the great group of questions concerning the relations of labor and capital, employer and employed, industry and the state.

Other questions are those of rural development, including such matters as the replanting of forests, small holdings for ex-soldiers and others; housing; education; public health; railways and transportation; electrical supply on a large scale;—all these and many others are under discussion as parts of the great reconstruction which will occupy the world not for months only, but for years, perhaps for generations.

CHINA AFTER THE WAR

By CHAO-HSIN CHU

THE CONSUL-GENERAL OF CHINA AT SAN FRANCISCO

I TAKE great pleasure in presenting for your consideration a few thoughts as to the position of China after the war, and I much appreciate the opportunity so to do.

China is one of the oldest nations in history, but perhaps one of the slowest in scientific advancement, for I must admit that China has been backward in science. And yet, with it all, is it not true that some of the great inventions of the world had their start in China? Gunpowder, which has been used to such a great extent during these last four years of warfare, had its origin in China. Our trouble has been that our scientific inventions have not been effectively developed; in

other words, what China needs, in the scientific line, in its after-the-war advancement, is scientific experts.

Thanks to your good government in its remitting of the Boxer indemnity funds, my country is now able to send large numbers of our young men to this country for education, and many of them are taking up scientific lines in your American colleges, with very satisfying results. With the help and under the guidance of your experts, these students will be able to do much for China. Take for example its mining conditions; there are in China a great many mines rich with various ores, which have been locked up, undeveloped, these thousands of years; with the opening of these mines, China would become a great factor in the world's ore market. And I confidently look forward to this happening in the not far distant future.

China is to-day in a more important position than ever by reason of the war. Her commerce has been increased to a great extent by reason of the war conditions. American merchants were forced to look to the Orient for many lines which they had heretofore got from Europe, and they also looked to the Orient for a market for many of their products which had heretofore been sent to Europe. Prior to the war, German trade in the Orient had been developed to a great extent. But to-day all German interests have gone, for we have driven the Huns out of business in China. You can therefore very readily see that this is the chance for Americans to expand your trade in the Far East for the replacement of the Huns. Truly, indeed, China, after the war, should experience a great business and scientific awakening if American business men and capitalists will but turn their attention to its resources. If your goods are being shipped there, it will then be but natural that you will give the country of China some thought and will begin to realize the possibilities contained within its boundaries.

China herself is in a position of being self-supporting, with which advantage she surely should build up all varieties of home industry. Yet she has not been able to show great achievement. Why? She needs expert guidance and assistance. She is looking for financial support and enterprising cooperation from her economic Allies, especially from the United States—a country that has such a splendid record for fair dealing with China in the past. We are not selfish nor do we desire to monopolize our home industrial activities. Our door is wide open. We are welcoming foreign bankers,

capitalists, manufacturers and mechanical and scientific experts—especially those from America.

You will appreciate from what I have now said, that it is my belief that the future prosperity of China after the war depends to a great extent on the help she will receive from America. But I want to call your attention to this: The help she will receive will result in mutual benefit to both countries. The merchant in China will receive benefits, but equally, if not more so, will the merchant in America.

The next important consideration which will tend to make a great and prosperous nation out of China in its after-the-war development, is industrialism, and this I believe to be the salvation of China. Although China to-day still remains an agricultural country, she is fitted and suitable for manufacture. The reason is obvious. She possesses plenty of labor. The rate of wages in China is very low. The domestic goods now are generally hand-made, yet they are marketable in competition with foreign machine-made goods. Gentlemen, I wish to propose that American manufacturers extend their activities to the Chinese territory and obtain the advantage of utilizing the cheap labor there. Through this, the wage-earning class in China will also receive benefit, as well as the American manufacturers. China is very rich in natural resources; her raw materials are in unlimited supply. With the facilities of your machinery and the systematic management of your experts, cooperating with the benefits of our raw material, such manufacturing concerns so started in China, as I propose, no matter how large their scale may be, will be substantially conducted and turn out economic goods which will excel the world's market.

There are, at the present time, I must admit, many internal conditions which hamper China's progress. There has been for many years strife between factions of the north and factions of the south. But I am happy to say that steps are now being taken to bring this to an end, so that internal peace may reign in China. The currency and monetary questions in China have also been a hindrance to China's progress. These questions are now receiving the attention of the proper officials, who are endeavoring to map out a course which will solve this matter for China. With these internal troubles out of the way, and with your trade embargoes removed, as will no doubt come about in a short time, and with an increase in ocean tonnage which will without question come about after the military needs of the Allies are settled, I believe that China's future

prospects for after-the-war development are exceedingly bright and that she can look forward to an era of prosperity. Her students are rapidly finishing their studies at your colleges and are returning to their home-land to take up the work there awaiting them—and there will be plenty for them to do. With trade properly developed, and her manufactures increased, China will then be ready to take her place among the nations of the world as a dominant factor.

In conclusion, let me invite you one and all to visit our country and see for yourselves what we have there. We will welcome you and endeavor to make you feel at home. Let industrial and mercantile commissions be sent from this country to report to the merchants, manufacturers and capitalists here what a grand opportunity awaits America for trade with China. We want your help in China; yes, but remember that in return we can give you large financial reward for such assistance. I sincerely hope that in your own after-the-war plans you will see the opportunities awaiting you in China and plan accordingly. Success and prosperity for China after the war would then be doubly assured.

THE FUTURE OF RUSSIA

By JEROME B. LANDFIELD

RUSSIAN ECONOMIC LEAGUE

THE future of Russia is a large topic. I shall be pardoned, I am sure, if I make the excuse that the time at my disposal is inadequate for a satisfactory treatment of it. But I will be frank and say that had I any amount of time I should not be willing to indulge in prophecy with any degree of confidence.

Nevertheless, it is possible to examine the materials at our disposal and trace some general lines of development in Russia that point to the probable course of events. To get a correct basis for our observations it is necessary to put aside certain prejudices and to throw into the discard a mass of misconceptions.

The prejudices are largely the result of ideas concerning Russia that were fostered in this country before the war through giving entirely too much credence to fugitive Russian revolutionists and to sensational journalists, and of our failure to realize the great part in the war played by Russia. It has been too easy for the average man to regard Russia as a traitor that went back on her allies, and forget that for two long years

Russia bore the brunt of the war and saved Europe at a cost of more than nine million casualties, and that she succumbed from utter economic exhaustion and German intrigue.

The Revolution was hailed in America as the dawn of a new day. As a matter of fact it was a violent disorganization of national life at a time when there were no constructive forces ready for the task of rebuilding the structure. The developments that took place were not unexpected to those who knew Russia.

In reality the revolution did not go very deep. The importance of its successive steps and currents has been greatly exaggerated by observers whose perspective has suffered from being too close to the stirring events in the large cities and from lack of experience in Russia in peaceful days. To the world at large Russia has appeared to be one vast chaos, aimless and hopeless.

To understand Russia you must visualize the people as being divided into two general classes: the minority dwelling in the cities and along the railroads; and the vast majority of agricultural peasants living away from these lines of communication, and therefore inarticulate. The former class includes both the "intelligentsia" and the industrial population. These are the people affected by the revolution, who participated in party struggles, who were demoralized by socialistic theory. These are the people whose voices we hear, whose ideas we interpret as the opinion of Russia.

The vast mass of the people, eighty per cent. or more, are silent. They do not know what the revolution is all about. They were disturbed, to be sure, by the land question and indulged in agrarian disorders, without however improving their situation or being brought into relationship with any of the political currents of the cities.

The character of a people, its ideals, its religion, its habits of thought, are not changed in a day or a year. Here we have a hundred and fifty million people, homogeneous, speaking the same language, having the same culture, professing the same religion. They have the conservatism of an agricultural population. Is it conceivable that they have suddenly undergone a complete transformation because little groups in the cities have been talking loudly about their various political programs?

This gives us a starting point for considering the probable course that events will take in Russia to-day. The people in the cities are starving; the peasants in their villages have food. Thanks to Kerensky and Lenin, industry is dead. The goods

which the peasants need are not forthcoming. Economic life is at a standstill. The money which is being printed off at the rate of four bililons a month is valueless. The peasant hides his food and stands in fear of Red Guard requisitions. What is the result?

The peasant psychology is simple. He sees only two things: the old régime and the present anarchy. Under the old régime life was possible, he remembers its joys and forgets its hardships. In the present anarchy, life is unendurable. Such words as "democracy," "republic," "soviet" mean for him only tyranny and utter disorder. His whole tendency to-day, therefore, is toward reaction. It is most significant that for months the peasants in various parts of Russia have been sending delegations to the towns to seek out the landowners and beg them to return and take back the estates from which they had been forced to flee.

Now look at this tendency in its larger significance; in its bearing on the international situation. Russia is coming back —of this there can be no question. Nothing can prevent her people from again attaining a strong national existence. Leaders will be found, armies will be formed that will clean the canker out of Moscow and satisfy Russian national aspirations. Who the men will be, we do not know. But men will be found. It may take months or it may take years. Suppose then that the Allies and America continue their policy of inaction, merely standing by and waiting for Russia to work out her own destiny without assistance.

Almost inevitably there will result a military dictatorship, and then a powerful, reactionary autocracy. That autocracy will not only guide the destinies of all these millions of people, but it will dispose of an enormous area of undeveloped natural resources, comparable to the American continent of a century ago; wheat, cotton, iron, copper, gold, oil, coal and forests. The Russians will hate the Allies and America, for they will recall the sacrifices they made for the common cause and that, when they were in trouble, they called for help in vain. They will snap their fingers at any arrangements made for them at the Peace Conference, arrangements in which they had no hand, and neither Europe nor America will undertake a fresh war to coerce them.

Worse than this; it will be German brains that are employed in the tasks of reorganization. Your German engineer and business man will not wish to remain in Germany, where there will be a lack of opportunity and heavy taxation. He will find

other lands closed to him. But the autocratic power in Russia, needing such ability in its work of reconstruction and in the development of resources, will turn to the German and open the wonderful field to him. Can you not picture the result?

Such is a view of the future of Russia if present tendencies are allowed to develop unguided, undirected. The situation is bad, but not hopeless. Quick, sagacious action may save it. The Russian situation is the key to the whole international situation, and upon its solution depends the durability of the peace to be made at Paris. Therefore it demands inter-Allied unity of plan no less than did the conduct of the war on the western front. The Allies must work through Russians; not through Russian politicians, but through the patriotic men who have been gathering together the forces of loyal soldiers to fight for the recovery of their land from the hands of the looters and plunderers. Quick support in money, arms, munitions and economic aid to these leaders will not only enable them to restore order and save Russia, but will also earn Russian gratitude and give us some voice and guidance in the formation of the government that is to come, and avoid the grave danger that would otherwise threaten the peace of Europe. This is no time for petty questions of non-interference or theoretical democracy; it is a matter of self-preservation for Europe and for ourselves. It is up to us to say whether we shall grasp the opportunity and do our duty, or whether we shall by inaction and academic haggling, take upon ourselves the full responsibility for another catastrophe.

GERMANY AFTER THE WAR[1]

By Dr. DAVID JAYNE HILL

LATELY AMBASSADOR TO GERMANY

IN accepting an invitation to speak of "Germany after the War," I feel constrained to say, that I should consider it adventurous for me, not being inspired with the gift of prophesy, to predict the condition of Germany when the war is really over; which, of course, will not be until a treaty of peace is signed.

The state of mind and the political situation in Germany when the conditions of peace have been imposed and must be executed, will perhaps be entirely different from what they are to-day. At present, Germany, virtually reduced to military impotence, is seeking to procure for herself the most favorable

possible terms of peace. When the terms of settlement are finally made known to the government, they will probably appear to them far less advantageous than those which they have been inclined to expect.

The peace to which Germany was looking forward at the time the armistice was requested was expected to be arrived at by a process of bilateral debate on the meaning of the fourteen rubrics of discussion proposed last January by the President of the United States. Those rubrics, as then understood, were so broad in their scope and so indefinite in some of their applications, that it appeared possible to interpret them in such a manner as to procure for Germany a peace that would, in effect, be a greater victory than the German armies could ever hope to secure by war. The policy that was then adopted and is at this time dominant in the German mind is an effort to obtain an economic victory at the cost of a military surrender,—an economic victory which would completely justify an acknowledgment of military defeat if it could be secured by the acceptance of the German construction of the fourteen rubrics considered as the terms, and the only terms, of peace.

It is needless here to discuss the conflicting interpretations of which these rubrics seem to be susceptible. It is sufficient to note that they are held to provide for the following privileges which, after peace, Germany, equally with other nations, might be permitted to enjoy, under the protection of "mutual guarantees of political independence and territorial integrity" provided by "a general association of nations":

1. Absolute freedom of navigation upon the seas, alike in peace and in war.

2. The removal of all economic barriers, and the establishment of an equality of trade conditions.

3. Free and open-minded adjustment of all colonial claims, unprejudiced by the actual results of the war.

4. Entire national self-determination, which would logically include perfect freedom in choosing and maintaining a future form of government.

5. Admission on equal terms into a general league of nations.

A peace based upon these conditions, and involving only the surrender of what Germany had no claim to before the war, would render her not only a victor in all the substantial elements of victory, but would leave her in population the largest political unit on the continent of Europe, with a clear accession by union with Austria of more than eight million of the Teu-

tonic race; and, after extruding some four million of her present subjects belonging to other races, would give her a net gain of some four or five million souls and a considerable amount of new territory. When the peace was signed, the zone of occupation evacuated, and the occupying troops demobilized, Germany, whether a republic or a monarchy, the choice being freely open to her, with untouched economic resources and organization, no matter what proportionate disarmament might be imposed, would be by far the strongest military state in Europe. She would possess racial unity, territorial enlargement, economic preeminence on the continent, and military security. Even though she had not been defeated in the field, that peace would be an advantageous one for Germany to make, a more satisfactory one indeed than she could ever hope to win by the victory of her armies on the field of battle.

How then has Germany hoped to secure such a peace?

The course of procedure was clearly marked out for her. Such a peace could never be made with the kaiser as the head of the empire. That had been plainly declared. What, above everything else, was demanded of Germany was that she should repudiate her Hohenzollern dynasty and take her place among the nations as a free, self-governing people; for a "people," it was assumed, when it takes government into its own hands, is always just, honorable and trustworthy; while rulers alone are untrustworthy and in reality not to be held responsible. Let the rulers and the military caste, therefore, be repudiated, and peace would be easily obtainable.

What nation, weary of a fruitless war, seeing its army, after a supreme effort to break through the enemy's reinforced lines, steadily and inevitably retreating, its territory about to be invaded, its cities bombarded and assaulted from the air,—what nation, I say, could be expected to miss such an opportunity to make a profitable peace?

Germany was too prudent to lose such a chance of advantage. The kaiser's own appointed imperial chancellor, accountable only to him, therefore, asked for an armistice, in order that such a peace might be negotiated.

"Who are you, who ask for an armistice, with a view to peace, and whom do you represent?" was demanded of the imperial chancellor. "Do you speak for the German people?"

The imperial chancellor is silent. How could he speak for the German people, with whom he had nothing to do, and to whom he is not responsible? The answer must be better staged.

It is a new officer, therefore, the representative of what poses as a new government, the secretary of state for foreign affairs, who responds to the question addressed to the imperial chancellor and writes for him a certificate of character.

"The present German Government," he declares, as if speaking by some new popular authority,—"the present German Government, which has undertaken the responsibility for this step toward peace, has been formed by conferences and in agreement with the great majority of the Reichstag. The chancellor, supported in all his actions by the will of this majority, speaks in the name of the German Government and of the German people."

Thus, at last, the long-silent "German people," the presumably just, honorable and trustworthy German people, who were assumed not to be responsible for the war, but rather the victims of a false and shameless autocracy too infamous to be dealt with, have, it is made to appear, really spoken! They have spoken, however, only through the voice of a "great majority of the Reichstag,"—a body which from the beginning had with unanimity supported the war and all its atrocious procedure; a body which only for a moment found a voice with which to speak the mind of the people, and having been for that one moment indistinctly vocal, has since subsided into the silence of the grave! If the German Reichstag really represents the German people, why is it not, in this great emergency, at its post of duty now?

Germany, in this fateful hour, seems to prefer to have no responsible government. Is it because it is more difficult to hold accountable, and on that ground to condemn and punish, a nation without a responsible government than a nation which can be on specific charges indicted and arraigned for its past misdeeds?

Say what we will of the kaiser's personal régime, it was at least one which, whether trustworthy or not, could be held accountable for its crimes. But the kaiser's government is alleged to be no longer in existence. In order that it might disappear, he was urged to abdicate. He professed to have done so, and went to Holland. Germany appeared satisfied, but the outside world demanded the evidence of his abdication; and it was not until nearly a month after his retreat that, in order to satisfy foreign demands, on the 29th of November, a document was finally signed by the alleged ex-kaiser.

The reason for his withdrawal from Germany William II. has himself frankly stated. "I go to Holland," he is reported

to have declared, "in order to facilitate peace"; and no one has contradicted this statement of why he was going. The German people, it seems, when the kaiser's armies were beaten in the field, suddenly wished him gone, sent forth, as it were, like the "scapegoat" of ancient times, into the wilderness, not because his people hated him or considered him an arch-criminal, not because they themselves wished to destroy him—as they had, and still have, an opportunity to do—but because it appeared that he might be laden with their sins, and his going with this burden would "facilitate peace" by consigning responsibility to the wilderness of oblivion.

And why was it supposed that his going would facilitate peace? Was it because an irresponsible nation can demand easier terms than a responsible ruler?

The "people of Germany" seem to be pleading at the judgment bar of history, and preparing to say at the peace table: We demand peace because we are an innocent and a defenseless people. First of all, we are a "people," and how can you punish a whole people? Has it not been said that there is something sacred and sacrosanct in a "people"? You are trying "to make the world safe for democracy." We are now a democracy. See, we have dismissed the kaiser! We shall have no more of him. Have mercy upon us, kameraden! We accept all your glorious democratic principles. Now, undoubtedly, you are ready, since you would make the world safe for democracy, to make our democracy an asylum of safety for us!

Here is a change of plan, but is there any change of heart, behind these pretensions? Have all Germans, or most Germans, suddenly become social democrats, clamoring for a socialist republic? Where are all those millions of troops? Where are all those hundreds of thousands of officers, those Prussian generals who are said to have made the kaiser declare war? Have they gone to Holland? Only a few of them. The vast majority, armed, organized, waiting for a word of command, are in Germany; and they are silent, as silent as the Reichstag. Why are they silent? They are silent because silence is the order of the day, a token of irresponsibility and acquiescence in a new order of things. They are waiting to see if an economic victory can be won. If it is won, they will have their reward. If it is not won, they will have something to say in the future when the peace is concluded, and is yet to be executed, when the allied armies are demobilized, and when the rest of Europe has gone to sleep.

There was no revolution in Germany before the armistice. There has been hunger, there has been weariness, there has

been joy at the cessation of battle, there has been a vision of peace, of comfort and tranquility. There has been also an emergence of bolshevism, the weapon which Germany skillfully forged and thrust into the vitals of Russia; but Germany expects to receive no serious wound from this weapon. There is, I think, no real revolution in Germany now, no movement beyond street fights and bread mobs, such as may occur in any city when the conditions of life are hard and when the passions of low-browed men are for a time let loose. The Councils of Workmen and Soldiers solemnly infest the Herrenhaus under the protection of a machine-gun; but the generals know that at any moment in Germany they could make short work of all this assemblage of the rags and tatters of bolshevism. But the time is not opportune. The disease of bolshevism, in so far as it is a social malady, may safely be permitted in Germany to run its course. It illustrates to the middle-class what the dangers of democracy may be. It shows to the world how wide the infection may become, if peace is not quickly made. It presents to the Allies the puzzling problem how to obtain redress from a people who disavow accountability and are too broken and disorganized to enforce the duties of a responsible state.

How real is a revolution when the domestic courts are in session, when the bureaucracy is administering affairs, and when life and property are not in great immediate peril? The Germans are an exceptionally orderly people. Their demonstrations are customarily innocuous. Their habits of life are prudent. Their burghers are not stricken with poverty, and their proprietors, accustomed to the use of arms, are able to guard, and are determined to defend, their own material interests. When a real revolution appears, if it does appear, they will unite their forces and rally to their own protection. What they wish at present to exhibit to their conquerors is a starving population incapable of bearing new burdens, an unsettled public order that may prove a contagion to their neighbors, an effort for democracy that will be an apology for the past, and above all a situation which will excite the sympathy of the credulous and the support of class interests of a revolutionary temper in the population of those countries which they would represent as their oppressors for capitalistic gain.

You wish the evidence of this? Then listen to the speech of Hindenburg to his army, on November 13 at the moment when he had decided that it was an economic rather than a military victory for which Germany was to look. Does he pretend that he or they had fought under autocratic orders? Does he confess that the course of Germany was wrong? Does he

call for a change of heart, or merely for a change of policy? He says:

> Germany up to to-day has used her arms with honor. In hard fighting the soldiers have held the enemy away from the German frontier in order to save the Fatherland from the horrors of war. *In view of our enemies' increasing numbers and the collapse of our allies and of our economic difficulties,* our government was resolved to accept the hard terms of the armistice, but we leave the fight, in which for more than four years we have resisted a world of enemies, proudly and with heads erect.

If we turn to what calls itself a government of democracy, what do we hear from the alleged premier, Ebert, when he welcomes the troops coming home in Berlin? Does he repudiate the purpose of the war? Does he inform the returning soldiers that they have made useless sacrifices, or have been engaged in an unworthy cause, at the command of an autocracy in whose downfall they should rejoice? Tens of thousands of men march by, still bearing their arms, filing between other tens of thousands of people who are supposed to have made a revolution, who welcome them as joyful spectators, the troops laden with garlands, as they tramp on to the loud blare of bands of music intoning, "Deutschland, Deutschland über Alles."

> Your deeds and sacrifices are unexampled. No enemy overcame you. *Only when the preponderance of our opponents in men and material grew ever heavier did we abandon the struggle.*
>
> You endured indescribable sufferings, accomplished incomparable deeds, and gave, year after year, proofs of your unmistakable courage. You protected the homeland from invasions, sheltered your wives, children and parents from flames and slaughter and preserved the nation's workshops and fields from devastation.
>
> With deepest emotion the homeland thanks you. You can return with heads erect. Never have men done or suffered more than you.

Is this a proclamation of democracy? Is the world to be "made safe" by this adulation in a career of national crime? What can be said after this to the heroes who are told that in serving the kaiser they were nobly defending the fatherland, if for this glorious service they are asked to toil in the field and the workshops to pay for the damage they have done to Belgium, to France, to Poland, and to other lands which they have, without just cause, ruthlessly invaded and cruelly devastated? Can they be urged to make reparation? Or will they think it unjust that, having suffered so much in a cause so noble, they must be treated as if they were the perpetrators of outrages for which they, their children and their children's children must be held accountable?

Here is no note of penitence or contrition. It is the same Germany, speaking with the voice of Hindenburg and Ebert,

which accepted the kaiser as its glorious war lord, that believed, or professed to believe, in the divine right of conquest, and threatened innocent nations with the extortion of enormous indemnities, covering not only the total cost of their exploits, but sufficient to enrich the nation and render it the most opulent in the world.

The attitude of Germany in accepting just conditions of peace will be the test of the character of the German people with whom in the future other nations must live and deal. The first necessity to a recognition of reformation is the disposition to repay, in so far as that is possible, at whatever sacrifice, the damage they have inflicted. If exemption from this obligation is claimed on the ground of irresponsibility, it will imply a degradation of character as deep as that evinced by the predatory enterprise in which all Germany was to profit by collecting the costs of the war from its innocent victims.

Without reparation for the injuries inflicted, there can be no real peace. The example of such an unpunished exploit would remain as an encouragement to future crime.

Will the German people, whose sense of justice, honor and moral obligation is soon to be put to a crucial test, voluntarily accept the burdens which a just peace will impose upon them? If not, what confidence can be placed in the proposal to make the world safe for democracy, and what will be the world's judgment upon the ethical standards of democracy itself? We shall soon learn from the conduct of Germany, now speaking only through a mask of democracy, whether or not we are to ascribe all the enormities of the war to the depravity and malevolence of her rulers, against whom, until the moment of defeat, the people offered no protest; and whether or not a people, left free to express its own character, will accept the burdens of an act of justice.

On account of the Great War, in which their duty rendered it necessary that they should participate, the people of the United States of America have not only freely offered to the cause of justice the lives of tens of thousands of their sons, but have paid, or will have paid probably over thirty billion dollars, which they have not yet demanded should be returned to them. The whole expenditure of the war, considered merely as a matter of monetary sacrifice, is said to exceed two hundred billion dollars; and yet this gigantic sum, which it will require generations to make good, is one of the least and one of the most easily repaid of the damages inflicted by this assault upon humanity.

In what light do the German people look upon their duty in this matter?

There is in Germany no more keen and frank exponent of the real purposes of Germany than that *enfant terrible* of journalism, Maximilian Harden. "No state," he says, "that was snatched along into this flood of the deluge can expect other indemnity than those which can be effected by thrift and savings," which, he points out, must be the effort of each people for itself. There are to be, then, no indemnities, paid by Germany. He says:

> Taxes and customs duties that would yield even the interest on the tens of billions of debt would necessarily paralyze trade and industry in competition with America, Australia and the Yellow World; would necessarily grind to bits the idea of private property. . . . What then shall happen? Something that has never happened before. . . . Let Europe's war debt become a treasure of atonement. Let the war loan certificates of all the European states that have participated in this war . . . serve as legal tender, guaranteed by all debtors; a form of money which in every land that is subject to the jurisdiction of the arbitration court must be accepted in payment in any transaction and by any creditor at its full face value!

Thus all the national war debts, Germany's included, it is proposed, should be pooled in one great "peace fund" and placed under a central control to prevent the outbreak of future war! "The court of the nations," so runs the scheme,—"serves as trustee of the treasure, and sets aside therefrom in equal parts out of the certificates of indebtedness of all the states what it needs for itself and its militia." It may punish disobedience of its judgments in the case of any individual state by means of a money penalty, declaring valueless all the circulating certificates of that state, calling them in, or destroying them, in the case of any state that breaks the peace without previously being itself bodily and vitally threatened. "Here," this writer continues, "is where a community of European citizenship beckons us. Thus the continent would be delivered from its money stringency; . . . thus it would gently be obliged to bury quickly and deeply the useless reminders of futile conflict."

It is time for Germany, if she would ever regain the respect of mankind, to dismiss such fantastic illusions as these, and to take up the burden of national responsibility in a serious sense. Let her, first of all, establish a government that will admit the responsibility of the nation for the past, and with which it is possible to deal. Then let that government assume and enforce those obligations which a just peace will certainly impose upon the German nation; not forgetting that the

greatest possible calamity to mankind would be to write into the law of nations, by absolving the German people from complicity in a national crime, the ruinous principle that a people is not responsible for the government it supports, and that it may therefore exempt itself from merited punishment by merely changing its form of government.

Has Germany the character to stand this test. When she has proved her ability to do so, then, and only then, can there be a possibility, when years of fidelity have established her good faith, of admitting her to a place in a league of nations. If those who are gathering to conclude peace now cannot enforce that judgment, then it is more than futile to hope to do so in the future; for the contingencies of such a future would be simply appalling to contemplate.

SOME AGENCIES IN THE DEVELOPMENT OF CLOSER RELATIONS WITH THE COUNTRIES OF CENTRAL AND SOUTH AMERICA

By Dr. L. S. ROWE

ASSISTANT SECRETARY OF THE TREASURY AND SECRETARY-GENERAL OF THE INTERNATIONAL HIGH COMMISSION

IT had been my intention to speak to you to-day on the activities of one of the agencies with which I have been closely associated and which, during the last few years, has been contributing considerably towards the development of closer relations between the United States and the countries of Central and South America. The broad scientific character of the association which is here assembled in annual meeting, leads me to take up with you some of the broader aspects of the situation which presents itself to-day as result of the signing of the armistice. You have here represented the leaders of every branch of scientific endeavor and, as I look over this assembly, I am deeply impressed with the important part to be played by men of science in the elimination of causes of international misunderstanding and in the maintenance of close and amicable relations amongst the nations of the world.

The people of the United States have given but little thought to foreign affairs, and it is a significant fact that that thought is only stirred when we are at the brink of war. All the great national slogans relating to foreign affairs have been either war slogans or phrases shot through with belligerent intent.

The time has now come when public opinion must become a far more positive and constructive factor in guiding foreign

policy. We are, I believe, all agreed that unless some form of effective international organization is agreed upon at the Peace Conference, the war will have been lost. In order, however, to make that international organization fully effective it is most important that the ties that bind nations together shall be moral and cultural as well as purely political. It is through organization such as this that these cultural ties can best be developed. I hope the time will come when every scientific organization in the United States will maintain close and cooperative relations with similar associations in the countries of Central and South America. Such relationship and such cooperation when once established will not only serve important scientific purposes, but will also be important factors in bringing about closer acquaintance between large groups of individuals in various countries. Acquaintance and cooperative action thus established exert a very real influence in removing international misunderstandings and prevent the irritation and distrust which have their root in a lack of mutual acquaintance. As an instance of the possibilities of such international cooperation, I wish to present the briefest outline of organization and results accomplished by the International High Commission.

The outbreak of the war threw into even higher relief than had previously been possible the extent to which the American republics are dependent upon one another and bound to each other. The community of interest called for a unity of policy, for frequent and the frankest consultation. The Secretary of the Treasury presided over a conference brought together by invitation of President Wilson, the avowed purpose of which was to devise means of absorbing the shock of the European War and settling the economic relations of the free countries of this hemisphere upon so firm a basis that no disturbance could later imperil them. That conference, held in the third week of May, 1915, considered the chief problems incidental to closer commercial and financial relations, such as transportation, banking facilities, the uniformity of commercial law and the substantial harmony of fiscal administrative regulations. With a view to enabling its recommendations to be carried out and to give permanency to its work, the financial conference recommended to the governments which had been represented in its sessions the establishment of a permanent international commission dedicated to the detailed working out of the questions with which the conference had dealt. A new principle was to be followed in this respect, inasmuch as the difficulties which had sprung from intermittent international meetings

had made impossible any connecting and enduring international legislation. The proposal made and now successfully in operation was that there should be in each country a group of financiers and jurists under the chairmanship of the Minister of Finance, that these national sections should work for alterations and adjustments of their own respective law so as best to accommodate the needs of international commerce; that the sections or their representatives should confer in larger or smaller groups as occasion warranted; and that the work of the entire commission should be directed by a small cooperating and planning organization. This concept has been followed without any serious setback and at its first meeting in Buenos Aires in April, 1916, the commission adopted specific recommendations with reference to the major points upon its program and entrusted to a Central Executive Council, consisting of the officers of the United States Section of the Commission, the elaboration of projects, legislative or international conventions designed to give effect to these recommendations.

The commission is now successfully in operation, the chief emphasis being given to the simplification of fiscal methods and the essential harmony of the commercial law in force in the American nations. As the war has gone on, it has become more and more evident to how great an extent the peace and well-being of the future will depend upon technical legislation and economic agreement of the character aimed at by the commission. Time does not allow even an enumeration of the matters with which the commission has dealt either by way of suggestion as to alterations in national legislation or by way of international treaties. It is sufficient to say that the aspiration of the financial conference that a permanent body should be set on foot, empowered and enabled to carry out over a fairly long period a definite program of a non-political and non-diplomatic character, seems assured of fulfillment.

The International High Commission has been cited as a concrete example of the possibility of establishing close relations between national groups whose community of interest furnishes a firm basis for international cooperation. If such cooperative groups were indefinitely multiplied, it would be possible to develop international bonds so close that there would be little room for distrust, misapprehension or misunderstanding. We must recognize that the maintenance of a durable peace does not merely mean the maintenance of amicable relations between the constituted governmental authorities, but also an ever-increasing intertwining and interlocking of cultural and moral interests.

A LEAGUE OF NATIONS AS A TANGIBLE ORGANIZATION

By HERBERT S. HOUSTON, A.M., LL.D.

ON THE EXECUTIVE COMMITTEE OF THE LEAGUE TO ENFORCE PEACE

SOME thirty years ago a young Princeton bachelor of arts received from the Johns Hopkins University the degree of doctor of philosophy. Last week, in the old University of Paris this scholar, acclaimed as a world statesman of the first rank, received the highest degree of that ancient seat of learning, and, in acknowledging the academic honors he envisaged, in eloquent phrase, what has come to be the hope of the world—a league of nations. His conception of such a league, he said, was that it should operate as the organized moral force of the world. The subject that I have been asked to present to the American Association to-day is such a league, as a tangible organization. In responding to the request, let me say, at the outset, unless the League of Nations is a tangible organization, vigorous, effective, powerful, it will be but another foray in idealism, a filmy day dream in the land of mirage. As a distinguished jurist of the Netherlands, M. Asser, said in the Hague Conference of 1907, in speaking of the Permanent Court of Arbitration: "Instead of a Permanent Court the convention of 1899 gave only the phantom of a court, an impalpable specter." In the eleven years that have elapsed since 1907, four have been given to the most distructive of wars and the world is in a far less friendly mood to-day for phantoms and specters than it was in 1907.

There are those who express the fear that the President of the United States, the scholar honored by Princeton, Hopkins and the Sorbonne, is in favor of an academic ideal, rather than a practical one. But personally I am unable to share that view. It is not reasonable to suppose that the President has crossed the seas to urge the formation of a moral entente that shall satisfy itself with mere pious aspirations. He could not have traversed, this Christmas week, the devastated wilderness that was northern France; he could not have spoken to the victorious armies of the living or seen the silent camping ground of the great armies of the dead, and then ask the world to safeguard itself against the barbaric thrust of some future Germany with an armament of fine phrases and a league of nations held together by a rope of sand. That is not only unreasonable, but unthinkable. In seven of his fourteen points the President supports a league of nations with power to re-

quire covenants and to enforce guarantees. Ex-President Taft, who has heartily endorsed the President's attendance at the Peace Conference has recently done Mr. Wilson the further service of calling renewed attention to this fact.

In the second of the fourteen points, it is said that the high seas may be closed only "by international action for the endorsement of international covenants."

In the third point equality of trade conditions is to be required "among all nations consenting to the peace and associating themselves for its maintenance."

In the fourth guarantees are to be "given and taken that national armanents will be reduced to the lowest point consistent with domestic safety."

In the eleventh it is provided that "international guarantees of the political and economic independence and territorial integrity of the several Balkan States should be entered into."

By the twelfth it is enjoined that "the Dardanelles should be permanently opened as a free passage to the ships and commerce of all nations under international guarantees."

In the thirteenth it is required that Poland shall be secured "a free passage to the sea," and "political and economic independence and territorial integrity should be guaranteed by international covenants."

In the fourteenth it is said that a "general association of nations must be formed under specific covenants for the purpose of affording material guarantees of political independence and territorial integrity to great and small States alike."

Manifestly a league of nations able to perform such functions and to secure such results must be a tangible organization. A convention to establish such a league has been drafted by a group of able jurists and publicists, headed by a distinguished citizen of Batlimore. The Honorable Theodore Marburg. And a general plan for such a league has been adopted by the League to Enforce Peace within the past few weeks. As this plan is probably the most definite that has thus far been formed I shall undertake to describe briefly some of its most salient features. To begin with it proposes a league that shall have the organization requisite to safeguard the world's peace and to perform the work of the world that needs to be done internationally. It provides for legislative, executive, judicial and administrative agencies. These are to be parts of a tangible international roganization. It is proposed that these parts shall be operative continuously, making of the league a going concern to render service of such value that membership in it

will be sought and prized. Consider for a moment the dozen new nations that are to be formed at the Peace Conference. Clearly they can not be left to shift for themselves, any more than Cuba could after the Spanish war. Their formation creates the responsibility of studying and guiding them and that is an international job that must be done internationally by a League of Nations. The plan of the League to Enforce Peace recommends:

> An administrative organization for the conduct of affairs of common interest for the protection and care of backward regions and internationalized places and such matters as have been jointly administered before and during the war. We hold that this object must be attained by methods and through machinery that will insure both stability and progress, preventing on the one hand any crystallization of the status quo that will defeat the force of healthy growth and change, and providing on the other hand a way by which progress may be secured and the necessary change affected without recourse to war.

And further recommendations in the plan, in addition to courts with the combined economic and military power of the league behind them, call for a representative congress to formulate and codify rules of international law and "an executive body, able to speak with authority and to act in case the peace of the world is endangered." Of course, this plan has not presumed to work out all of the details of these various international agencies for that is the task of the Peace Conference. But it does boldly propose and provide for a tangible organization that shall undertake to safeguard peace and do the international work the world has to do? Much of this work is a direct outcome of the war. It is an essential part of the victory of democracy.

If Jefferson was right in putting into the forefront of our Declaration that all peoples have "certain inalienable rights" such as "life, liberty and the pursuit of happiness"—and we believed that so stoutly that we sent two million men across the ocean to fight for it—then the peace to be established must make these rights secure for all nations, small and great. And it is manifest that among these rights are the fundamental commercial rights of access to the sea and access to food and to basic raw materials. Without these rights no nation can, for long, have life or liberty or happiness. If these rights, particularly for the new nations to be formed, are to be granted and guaranteed, a league of nations must have some clearly defined and adequately equipped agencies for these purposes. Happily these are already in existence—at least in part—in connection with the Supreme War Council at Versailles. The

International Shipping Board offers a good illustration. Then the urgent need arose for getting our army to France with the utmost speed, the Shipping Board saw to it that 60 per cent. of the vessels needed were obtained from the merchant marine of Great Britain. The important matter of getting food both to the armies and to the non-combatant among the Allies was taken care of by this International Shipping Board. Had it not been for the effective way in which the board used the available shipping facilities of the Allies, it is difficult to see how the war could have been won. Now some such International Shipping Board, as an agency of the League of Nations, could see to it that basic raw materials, which had been allocated among the nations by an International Raw Materials Board, were speedily and effectively distributed. Through these two boards, as adjuncts to the League of Nations, the administrative work of insuring nations access to the seas and to a proper proportion of raw materials could be provided for.

An International Clearing House has been proposed as an essential piece of machinery for the service of commerce in any world organization that would follow the war. An able Chicago banker, John J. Arnold, a man who is considered a master of international exchange, has long urged the desirability of such a clearing house. It could settle balances between nations just as our modern clearing houses now settle balances between banks in the cities in which they are located. When George B. Cortelyou was Secretary of the Treasury in President Roosevelt's Cabinet, he proposed that International Gold Certificates might be secured by gold deposits made by the various commercial nations and that these certificates could be used in settling trade balances, thus avoiding the delay and danger of transporting the actual gold. The Federal Reserve Banking System might serve as a model for an international banking system to accomplish the purpose which Secretary Cortelyou had in mind. If this took the form of an international clearing house, in which each nation should make deposits of gold, in direct proportion to the volume of its foreign trade, it is manifest that a piece of powerful international machinery would be established that could perform prompt and important service for the League of Nations. As an illustration, if a nation sought to make war in defiance of its pledge to seek adjudication of its differences before the courts of the league, it would as an automatic penalty, forfeit its gold deposited with the International Clearing House and also its trade rights and privileges as a member of the League

of Nations. The procedure and penalty would be similar to the suspension and expulsion of a member from the Stock Exchange. Such a clearing house, therefore, would be an agency to aid in preventing war, and, what is of greater importance, it would be a powerful agency to aid in promoting peace; and that is true of all the other international commercial agencies that might develop in connection with the League of Nations. Their advantage would be so great—in fact so vital—to every nation that it is hard to believe they would be surrendered except as a final resort in a desperate situation.

An international food board—such as the one Mr. Hoover and the Food Controllers of the Allied Nations have virtually constituted, might be an essential part of the League of Nations. Its existence would be based on the broad humanitarian ground that the world must be fed. It appears that all the civilized parts of the world now believe that this is adequate ground for international action, and if it be once conceded that the duty of feeding the world rests upon the world as a whole, then it is clear that this duty can be discharged, much more fully and much less expensively, through a shipping board acting for the League of Nations than by the independent action of nations separately. Associated with the board could be the International Institute of Agriculture, which was formed at Rome some years ago by Mr. David Lubin and which had begun to render a service of the most far-reaching value to all countries, when its work was interrupted by the great war. And associated in this same field, although occupying more distinctly a field of charitable service, should be an International Red Cross. This organization under the Geneva Convention sprang from the impulse that the human service of succor in emergencies should pay no heed to national boundary lines. This has continued to be the fixed policy of the Red Cross, although for organization purposes it has established itself in many countries and limited itself to their geographical boundaries, but this international war has thrown into such high relief the international character of Red Cross service it would seem to be a natural and inevitable development that the organization should become avowedly and definitely international.

It is not improbable that an International Chamber of Commerce might become an essential factor in the League of Nations. In some countries the Chambers of Commerce have official status and connection with their respective governments. And whether they had such connection or not they

could become a powerful agency for mobilizing good will among the nations, by the accepted give-and-take spirit of business, by the development of an established policy of fair dealing, under which trade discriminations would disappear, and by consciously weaving the bands of commerce into bands of peace.

Such an International Chamber of Commerce is already in existence, and it had a largely attended convention in Paris in the summer of 1914, shortly before the war broke out. The Chamber of Commerce of the United States has appointed a committee "To make a study of the question of the reconvening of the International Congress of Chambers of Commerce at the earliest time that it is judged expedient." Edward A. Filens, of Boston, who was a member of this committee not long ago expressed in this fashion what is doubtless the general view of American business: "It will not do to leave to traditional diplomacy and to ever-changing cabinets and governments alone the handling of those business difficulties which will menace the successful conduct of international trade and threaten the durable peace of the world." The Chamber of Commerce of the United States, representing the organized business of the nation, is squarely behind the proposal for a League of Nations and will unquestionably support the creation of international agencies that will make the league effective.

Of course the Postal Union is already an international organization. It would naturally be taken over by a league of nations. The controlling idea in the organization of the new world is interdependence and the essential factor in interdependence is communication. Following the post, by ship and coach and train, came the telegraph by land and sea, the telephone and then, as a capping achievement, the wireless: With these distributive means of communication the productive means also multiplied—the printing presses, typewriting machines and all manner of mechanical devices—and all these means of quick communication have geographical boundaries no more than have the winds of heaven. Their control must be international and the Postal Union is undoubtedly capable of important developments.

The cables in particular offer a field for international development of the most far-reaching character. Great Britain has demonstrated the incalculable service and value of using them for quick and cheap communication. Through her control of cables she has held her far-flung empire in the mighty mesh of friendly understanding—the most powerful bond of union the world has yet discovered. And a league of nations, made up of self-governing democracies, will surely find, as in the

past, the cable and the wireless, agencies of tremendous power in weaving that fabric of common understanding that will be a sure basis of peace. This international power of quick communication might well be likened to the force of publicity the President had in mind at the Sorbonne, when he said:

> Just a little exposure will settle most questions. If the Central Powers had dared to discuss the purposes of this war for a single fortnight it never would have happened; and if, as should be, they were forced to discuss for a year the war would have been inconceivable.

One of the strongest arguments for these various international agencies, as I have pointed out, is that they are essential to enable the world to do the international work that must be done. But the very doing of this work, as part of an organized League of Nations, would lessen the danger of war and be preventive in the best sense, by removing the causes of war. That is only one of the essential purposes which the organization of these various international agencies would accomplish. Another great purpose would be the use of these agencies in developing and applying economic pressure as a sanction to place behind the world courts which a League of Nations would establish. If the members of the league realize that they would at once forfeit the incalculable service which these agencies would render them the moment they undertook to go to war rather than to courts for the adjudication of their differences, it is reasonable to believe that they would go with their differences to courts. If they failed to do so the economic pressure that could be at once applied would prove practically irresistible. This is not the ordinary trade boycott and must not be confused with it. Instead a nation would be bringing economic pressure upon itself by breaking its pledge to other nations and thus forfeiting its standing and membership in the league. Among other things it would forfeit its free use of the seas. Right here is a limitation in President Wilson's announced view in regard to the freedom of the seas that is often overlooked. In his oft-quoted statement of the war aims of the United States, made in an address to Congress, January 8, 1918, he declared that one of our aims was "absolute freedom of navigation upon the seas, outside territorial waters, alike in peace and war," and then he added this significant qualification "except as the seas may be closed in whole or in part by international action for the enforcement of international covenants." This exception offers a wide range for the effective employment of economic pressure. The seas are the great highways of commerce. In times of peace they are open to the commerce of the world, but a League of Nations, in spreading

its control over the seas, could properly limit their use to the nations that observe the rules and regulations of the league. During the war the seas have been closed in whole to the commerce of Germany, through the international action of the Nations of the Entente; and this action was taken in order to enforce "international covenants" because of treaties broken and public laws spurned by Germany and her allies. The result was economic pressure of the most drastic character. The ocean-born commerce of the central nations was not merely reduced but destroyed. Their ships were interned in hostile ports throughout the world and these, of course, were all actions of war in time of war. Manifestly, should the freedom of the seas be abridged by the joint action of a League of Nations to enforce "international covenants" against the nation that had broken a covenant, the resulting economic pressure would be of overwhelming severity. No nation, however powerful, could withstand it for a long period; especially when many kinds of economic pressure were being applied at the same time through all the other international agencies that have been described.

It would appear therefore that the doctrine of the freedom of the seas is really merged in the larger proposal for the organization of a League of Nations and Earl Grey of Falloden, together with other English statesmen of authority, has made statements which indicate that this is their view; and assuredly it would seem that a League of Nations of which three such maritime powers as Great Britain, France and the United States were members—nations that have fought in a common cause to gain the victory over autocracy—might be entrusted with the international control of the seas.

The organization and control of the international work of the world by a League of Nations would make the league, from the beginning, an instrumentality of service which would gain for it respect and power. The inherent weakness of the Hague conventions, as all the world now agrees, was that they were not supported by any international organization having the power to give them effect. This weakness should not mark the league to be formed at the Peace Table. Instead it should be given the power to work surely and steadily toward peace, by lessening the causes of war. This, in the fulness of time, will result in a world accustomed to the orderly processes of peace and accustomed to the orderly processes of law, as developed in world courts. That is a great dream—but it has possessed the mind and heart of the free peoples of the world and they long to have it come true.

THE WORK OF THE DEPARTMENT OF LABOR OF THE UNITED STATES DURING THE WAR

By LOUIS F. POST

ASSISTANT SECRETARY OF LABOR

THE Department of Labor is the youngest of the ten executive departments of the federal government. It was carved out of the Department of Commerce and Labor by an act of Congress approved by President Taft on the 4th of March, 1913. President Wilson immediately appointed as the first Secretary of Labor, William B. Wilson, whose chairmanship of the Committee on Labor in the House of Representatives had just ended by expiration of his term as a Representative from Pennsylvania in the sixty-second Congress. The creation of the Department of Labor is for the purpose, as described in its organic act, of fostering, promoting and developing the welfare of wage-earners, improving their working conditions and advancing their opportunities for profitable employment. There is no discrimination in the act between organized and unorganized labor, although the department was created at the instance of organized labor through nearly half a century of agitation; and Secretary Wilson, himself a lifetime trade unionist, has established the policy of making the department serve all wage-earners alike, whether organized or not, and with full consideration for every other legitimate interest.

In the opening paragraph of his sixth annual report, the Secretary of Labor truly declared that if such a department had not existed at the beginning of the war, Congress would have been obliged to create one. This declaration is a necessary inference from the expansion of the department's functions. Until the entry of this country into the war in April, 1917, the department was equipped with four statutory bureaus—labor statistics, immigration, children, naturalization,—and with an administrative service for mediating labor disputes. It also administered a national system of labor exchanges known as the U. S. Employment Service, which had been developed by the Secretary of Labor for labor emergencies in peace time out of a division in the Bureau of Immigration. This modest departmental equipment had been so expanded before the armistice in November, 1918, as to comprise seven additional administrative services and two important

boards—making a total of fifteen branches. An account of the activities of those branches during the war period and of the duties of departmental supervision which their activities required, would account for the work of the Department of Labor of the United States during the war except in two particulars. It would be necessary to add the invaluable work of the Secretary of Labor as chairman of the President's Mediation Commission which investigated and reported upon the gigantic industrial conflicts of the southwest mineral fields and the northwest timber regions, and to this again, his work as one of the six members of the President's Cabinet who were chosen from the ten Cabinet members to constitute the historic Council of National Defense.

A description of all the activities of the Department of Labor during the war, or of any of them in detail, would carry me far beyond my time, but a brief survey will doubtless answer the purposes of this occasion.

Hardly had our country's part in the war begun when the supreme need for wage-earning labor—for an industrial army at home to supplement our military army at the front—became evident in exciting fashion and with disturbing effect. Theretofore, whenever demand for wage-earning work had exceeded the supply of wage workers, and wages had consequently drifted below the level of decent living, the law of supply and demand was very learnedly invoked as the natural regulator of wages. But when the war came on and this law began operating in the opposite direction, employing interests were eager to discard it in favor of conscripting labor. One of the great services which the Secretary of Labor rendered at that crisis was his insistence that if conscription of labor became necessary, the corresponding opportunities for labor must be conscripted first, so that labor conscripts should work honorably for the government and the public good as soldiers do and not servilely for private employers and private profit. Nevertheless, much confusion arose out of the disposition among employing interests to regard wage-earners less as members of the community than as servants, less as fellow citizens than as items of "labor cost," and when checked by Secretary Wilson's effective resistance to conscription of labor, this disposition began to express itself in demands for some species or other of labor dictatorship.

We had a food dictator and a fuel dictator, "why not a labor dictator?" "Labor is as important and as scarce as food or fuel!" These were rather familiar formulas, in sub-

stance if not in literal terms, at one period of the war. Involving functions of several departments, they of course chiefly concerned the Department of Labor. Indeed its very existence in any vital way was clearly involved. To have placed a labor director and his staff of assistant directors over the Secretary of Labor, as was in fact seriously proposed, would have been revolutionary and not improbably disastrous. It would at any rate have been a menace to the department which had been set up in the interest of wage-earners.

In circumstances such as those the Department of Labor organized its war activities. They sprang out of a set of principles adopted by the Council of National Defense and approved by the President for regulating the relation of war industries to wage earning labor. These principles related to labor exchanges, the training of workers, priority of demands for labor, agencies for the dilution of skilled labor as needed, adjustment of labor disputes without stoppage of work, safeguarding of working conditions, collection of data necessary for effective executive action, and publicity for the clarification of public opinion. Upon his adoption of these principles the President assigned them to the Secretary of Labor for administration.

I have already referred to the administrative machinery which the Secretary of Labor adopted for that purpose. It consisted of the six preexisting branches of the department with the nine additional ones especially organized for war purposes under the authority of the President. The nine additional branches were a war labor policies board, a division of Negro economics, a woman-in-industry service, a labor investigation and inspection service, a shop training and dilution service, a service for public information and education with reference to labor, a bureau of industrial housing and transportation including a section on living conditions, a service on working conditions, and a war labor board for adjudicating industrial disputes.

The War Labor Policies Board is interdepartmental in character, being composed of representatives of all the executive branches of the government having to do with war problems involving relationships of employers and employees. Its chairman is a member of the staff of the Secretary of Labor and its responsibilities as a body are to his department. The Woman in Industry Service is responsible to the Secretary of Labor for those conditions which, ramifying most branches of industry, especially relate to women wage-earners. A somewhat anal-

ogous ramification of the interests of Negro wage workers is represented by the Director of Negro Economics. The Investigation and Inspection Service keeps all the other branches as well as the Secretary informed upon call of such available facts as they need to know for expeditious and intelligent action. The Training and Dilution Service was originally for the purpose in part of preventing industrial abuses of so called "dilution" of skilled labor under war pressure, and in part for improving methods of shop training in the interest of greater production by labor without prejudice to labor, but since the armistice, its "dilution" functions having been abandoned, its work is concentrated upon shop training. The Information and Education Service is for the purpose of informing and educating the public, both by print and speech, as to the work of the department and to those needs of the government with which the department is concerned. The Bureau of Housing and Transportation is charged with the welfare of wage-earners in so far as their welfare relates to living conditions in contradistinction to working conditions. The Working Conditions Service is charged with their welfare in so far as it relates to working conditions in contradistinction to living conditions. The War Labor Board has adjudicated numerous labor disputes on the basis of the right of wage-earners as well as employers to unionize in freedom, of the industrial wisdom of collective bargaining, of the justice of a living wage, and of equal pay for equal work when women are employed in place of men. These bases were adopted unanimously by a commission composed equally of representative employers and wage-earning representatives and presided over jointly by ex-President Taft and Frank T. Walsh.

The work of those new branches of the Department of Labor has been of extreme value, but the story does not end there. Through the Employment Service a national labor exchange has been furnished which has supplied factories with workmen and the wheat fields with harvesters. The Bureau of Labor Statistics has gathered information without which the government and the public could have been grossly misled; for instance, that when cost of living is considered the wages of vast numbers of wage-earners are not especially excessive. The Bureau of Immigration, cooperating with other governmental branches both within and outside the Department of Labor, has adjusted important problems of labor immigration to puzzling problems of labor supply. The Children's Bureau has conducted a nation-wide "drive" for the protection of the

coming generation of men and women against the maleficent influences of war, upon children. The Bureau of Naturalization has made American citizens of thousands upon thousands of alien soldiers in the American armies in France as well as in the United States. The Secretary himself has laid the foundations for making the returning soldiers realize that the country they have fought for is measurably at least their own. And last, though by no means of least importance, the Mediation Service has amicably adjusted approximately 3,200 labor disputes, with satisfaction to all concerned, out of a total of about 3,800 entrusted to it during the war by the disputing parties.

The work of the Department of Labor as a whole is written at large in the sixth annual report of the Secretary of Labor, which brings the story down to the last days of the war.

THE LEGAL AND CONSTITUTIONAL ASPECTS OF THE PROPOSED PROHIBITION AMENDMENT TO THE FEDERAL CONSTITUTION

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THE proposed prohibition amendment is, outside of the merits of such a policy as a moral measure, so full of suggestions and questions that it becomes a citizen's duty to study its legal and constitutional aspects, its character and the results, if adopted, upon the system of our republican form of government; also the method of its submission by Congress to the states for ratification and the effect of the language wherein concurrent power to legislate is given to the federal and state governments.

The amendment reads as follows:

Section 1. After one year from the ratification of this article the manufacture, sale, or transportation of intoxicating liquors within, the importation thereof into, or the exportation thereof from, the United States and all territory subject to the jurisdiction thereof for beverage purposes is hereby prohibited.

Section 2. The Congress and the several states shall have concurrent power to enforce this article by appropriate legislation.

Section 3. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of the several states, as provided in the Constitution, within seven years from the date of the submission hereof to the States by the Congress.

I

The fundamental objection to the amendment is that it proposes to put into the Constitution a matter of police regulation when that document ought to be, and so far has been, limited to a statement of the basic principles of a representative government. The Constitution deals only with such matters and as a great charter of rights and powers conferred by sovereign states upon a government, which forms a union of them all, more powerful than any one or indeed than all regarded separately, yet still their creature and serving each state, it has risen to a height never before attained by such an instrument.

The secret which pervades its majestic simplicity is that it has to do only with those subjects which lie at the root of government. All others are left to the local communities, the states, to decide. The immense territory covered by the nation, with its varying climates and the differing temperaments of its people—in fact, its myriad of local conditions, render it best that all matters not necessary for the union should be left in the control of the states.

A principle, no matter how good it may be, has no place in the Constitution of the United States if it does not fall within that class of matters with which the Constitution was intended to deal. If we should undertake to put a statement of everything that is regarded as good by the different peoples of our forty-eight states, we should soon find the Constitution stretched to and beyond its limit, subject to frequent change and regarded with contempt by a large number of good citizens. It is a matter of common knowledge that many statute laws are so regarded now. But those statute laws can be easily changed whenever public opinion in the several states, or in the United States, so desires, but when once those matters, which ought to be the subject of laws either statewise or national, become a part of the federal Constitution, they are elevated to a dignity which they do not deserve and they consequently lower the respect with which that document is held. This is indeed a most serious menace to our form of republican government. If we can put into our national Constitution a matter relating to police regulation, such as this proposed prohibition amendment is, no matter how wise it may be as a police measure, then others can be also inserted relating to other individual conduct, etc. The Constitution will thus be dealing with particulars of individual action, not related at all to the fundaments of a republic.

Personal matters should be left to local authorities, or if

they are to go to the national government they should go as being subject to the laws of Congress rather than be put into the Constitution where they can only be changed by the slow and tedious method rightly provided by the Constitution for its amendment.

One of the principles upon which our form of government was founded was that personal liberty should be preserved so far as possible. To make absolute in the Constitution a principle relating to one subject invites making absolute other principles and thus the Constitution becomes an instrument of absolutism and defeats the very purpose for which it was established.

The liquor question would not be settled by adopting this proposed amendment to the federal Constitution. The laws in regard to it, if adopted, would be enforced in different degrees in the several states and the subject would be a never-ending force in both state and national elections. What amount of alcohol would make a liquor "intoxicating" and what constitutes "beverage purposes" would furnish large room for debate and inconsistent legislative action, which each state has the power under the proposed amendment to make.

It is well known that many of the advocates of this measure in the different states have been for years building up their political fences by endeavoring to pander to the prohibition vote without any regard to the effect upon our government. It would not much avail the *bona fide* prohibitionist to have prohibition at the expense of the republic, especially as he can have his desideratum otherwise without any injury to our form of government.

The Constitution should be limited to fundamental principles of government and should not contain police matters relating to personal conduct. If we begin with putting prohibition regulations in the Constitution we shall find other subjects, also not relating to the basic rules of a republic, crowded upon us for a place in that document. This course will bring the Constitution into disrepute and result in frequent changes and finally in its overthrow.

II

Another reason why the proposed prohibition amendment should not be ratified is that the amendment has never been passed on by the Senate and House of Representatives at Washington and submitted to the states in accordance with the provisions of the federal Constitution. The Constitution provides in article V. that "the Congress, whenever two thirds of both houses shall deem it necessary, shall propose amendments to

this Constitution." Two thirds of both houses must concur in deeming it necessary. According to the certified statement of Mr. Trimble, the clerk of the National House of Representatives, there were 282 votes in favor of the proposed amendment, six less than two thirds of that house. In the Senate, according to a like statement of Mr. Baker, the secretary of the Senate, there were on the final vote only 47 in favor of the proposed amendment, 19 less than two thirds of the upper house, and not even a majority.

It is true that there have been rulings by speakers of the House and by presidents of the Senate to the effect that two thirds vote means two thirds of those present, or two thirds of a quorum. A quorum is a majority, that is, one half plus one. A quorum in the House would therefore be 217, two thirds of which is 145. A quorum in the Senate is 49, two thirds of which is 33. According to such rulings it would be possible for the National Congress to propose an amendment to the Constitution when 145 out of 432 members of the House and 33 out of 96 members of the Senate so voted. We believe that such is not the true intent and meaning of the Constitution. It was considered by the men who made that great bulwark of civil rights that it should not be easy to change it and they wisely provided that before an amendment could be submitted to the states for ratification it must be deemed necessary by two thirds of both houses. The Constitution does not say that the vote shall be by two thirds of a quorum or two thirds of the members present, as it would have done, we believe, if such had been the intention. When such a vote was sufficient it was so expressly stated, as in article I, section 3, which deals with the power of impeachment, where it is provided that "no persons shall be convicted without the concurrence of two thirds of the members present."

In article I., section 5, paragraph 1, it is declared that "each house shall be the judge of the elections, returns and qualifications of its own members, and a majority of each shall constitute a quorum to do business but a smaller number may adjourn from day to day," etc.

Paragraph 3 of same section: "Each house shall keep a journal . . . and the yeas and nays of the members of either house on any question shall, at the desire of one fifth of those present, be entered on the journal."

In article II., section 2, paragraph 2, it is provided that "He" (the president) "shall have power, by and with the advice and consent of the Senate, to make treaties provided two thirds of the Senators present concur."

This discriminating language gives confirmation to the con-

struction of article V. that two thirds of both houses means two thirds of the full membership, rather than two thirds of the members present.

The Constitution was framed by men of the highest ability and character with an experience and surroundings such as could hardly again be expected. They had lived as colonists of Great Britain, were familiar with the principles underlying that great system for the protection of civil rights and liberties known as the common law, had gone through eight years of the Revolution, had seen and known the actual workings of the Articles of Confederation, which had been agreed upon during the Revolutionary War. They had realized that new states would come into the union. The Northwestern Territory was the main, if not the only thing, which kept the union from falling to pieces in 1786. This had been conquered by George Rogers Clark, in 1779, and which the careful and judicious part taken by our commissioners at the time of the treaty in 1782 had enabled us to hold. Virginia had apparent possession of it, but claims were also made by New York, Massachusetts and Connecticut. Maryland demanded that this immense territory ought not to be added to any one state or divided among two or three states, but that it should be the common property of the Union. She refused to ratify the Articles of Confederation until the four states named should relinquish their claims to the Northwestern Territory, which was done between 1780 and 1786. This action of Maryland was for many reasons a great contribution to the ultimate security and growth of the union. Congress spent much time in providing for the organization of this territory, culminating in the Ordinance of 1787, which was the beginnings of the great states of Ohio, Indiana, Illinois, Michigan and Wisconsin. Many disrupting forces were at work to destroy the union of the states but the problems arising in reference to the new territory tended to hold the union together. The construction of the Chesapeake and Ohio and Erie canals was the result of deliberations had in those early days for means of communication between the original thirteen states and this new territory. Commercial policies were discussed and a general convention of the states to decide upon a uniform system of regulations for commerce was called and held at Annapolis in September, 1786. Only eleven states sent representatives and the convention adjourned without transacting any other business than calling another convention to meet at Philadelphia on the second Monday of May, 1787, "to devise such further provisions as shall appear necessary to render the Con-

stitution of the federal government adequate to the exigencies of the union."

The delegates to that convention were such men as Alexander Hamilton from New York, Robert Morris from Pennsylvania, George Washington and James Madison of Virginia, the Pinckneys from South Carolina, and Elbridge Gerry and Rufus King, of Massachusetts, and Oliver Ellsworth and Roger Sherman, of Connecticut. It has been stated by many eminent authorities that never again would it be possible to get together men of such intelligence, experience, training and sincerity in such an atmosphere as pervaded the deliberations of that convention. They had a clear vision of many new states. They knew the pitfalls in regard to the fundamentals of a republican form of government and the fact that the document, which they produced, has with slight changes stood the test for all these decades and now is regarded as a model for the world generally, is evidence of their great insight and wisdom.

After the instrument had been agreed upon, it was referred to a committee on style and it was written in the best and clearest of English. It is inconceivable that when it said "two thirds of both houses," one third only was intended; for 145, two thirds of a majority, or of a quorum, is substantially one third of 432, the total membership of the present National House of Representatives, and 33, two thirds of a quorum of the Senate, is one third of 96, the present membership of that body.

The atmosphere in which the Constitution was prepared should not be overlooked nor should it be forgotten that every article is founded on the presumption of a clashing of interests between the larger and the smaller states.

Notwithstanding any precedent which has been made in the House and Senate which allows so small a number of each house to be considered as two thirds, the states have never decided that such a construction of the Constitution was the proper one, although they have ratified amendments submitted by less than two thirds of both houses, about which there has been no disagreement and where the point was not raised before them. Failure to raise the question concerning an amendment in favor of which there was practically unanimity of opinion can not be held a waiver of the right to raise the objection nor an acquiescence in the precedent claimed to have been established. We believe that no state, deliberately and with its eyes open, would desire to put itself upon record as in favor of this method of changing the Constitution. If a sufficient number of states should ratify such a method of amendment the results would be

fraught with grave consequence. This would be only the entering wedge.

The language of Mr. Justice Davis, in *ex parte* Milligan, 4 Wallace 125, is apropos:

> This nation, as experience has proved, can not always remain at peace, and has no right to expect that it will always have wise and humane rulers, sincerely attached to the principles of the Constitution. Wicked men, ambitious of power, with hatred of liberty and contempt of law, may fill the place once occupied by Washington and Lincoln; and if this right is conceded, and the calamities of war again befall us, the dangers to human liberty are frightful to contemplate. If our fathers had failed to provide for just such a contingency, they would have been false to the trust reposed in them. They knew—the history of the world told them—the nation they were founding, be its existence short or long, would be involved in war; how often or how long continued, human foresight could not tell; and that unlimited power, wherever lodged at such a time, was especially hazardous to freemen. For this, and other equally weighty reasons, they secured the inheritance they had fought to maintain, by incorporating in a written Constitution the safeguards which time had proved were essential to its preservation. Not one of these safeguards can the President, or Congress, or the Judiciary disturb, except the one concerning the writ of habeas corpus.

Article V of the Constituion also requires that three fourths of the states shall ratify any proposed amendment. It does not say three fourths of those that vote, but three fourths of the states. A state may refuse to vote upon the subject and if one state can refuse to vote, then 23 of them may so refuse, and three fourths of the other 25 may ratify the so called action of Congress; thus 25, being a majority or quorum of the 48, the proposed amendment would be a part of the Constitution by the ratification of only 19 states, if this method of amendment should prevail.

Those in favor of standing by the so-called precedents made by the speakers of the National House of Representatives and by the presidents of the Senate hold that the word "houses" means a session of the houses, capable of doing ordinary business; that is a majority or a quorum present in each house. But this matter of amendments to the Constitution is not the ordinary business of the legislative branch of the government. In the case of Hollingsworth *vs.* Virginia, 3 Dallas, 378, the United States Supreme Court held that the President's signature to a resolution proposing amendments to the Constitution was not required. Attorney General Lee, in his address to the court, said that "the case of amendments is evidently a substantive act unconnected with the ordinary business of legislation and not within the policy or terms of investing the president with a qualified negative on the acts and resolutions of Con-

gress." He was about to continue further in his answer to the argument of counsel on the other side when he was interrupted by Mr. Justice Chase, who said, "There can surely be no necessity to answer that argument. The negative of the president applies only to the ordinary case of legislation; he has nothing to do with the proposition or adoption of amendments to the Constitution."

It is, therefore, evident that the framers of the Constitution considered the proposing of amendments an extraordinary power outside of the ordinary business of Congress. Any precedents made by the House and Senate in reference to overruling a veto of the president, where two thirds vote is required, are, we believe, not binding upon the states in their view with reference to this extraordinary exercise of constitutional power by Congress.

But this question, while partly legal and one which the courts can determine, has also a broader range and is one which in the immediate future is coming before our states for action. It has a political aspect, using that adjective in its best sense, and the responsibility should not be shirked by the Legislative Department and cast wholly upon the Judicial Department for decision. The state senators and representatives are sworn to support the Constitution of the United States as well as that of their own state and their sworn duty requires a rejection of any amendment which has not been submitted in accordance with that Constitution.

To show the lengths to which the speakers of the house have gone in defiance of the Constitution it might be stated that in February, 1902, the House was considering the joint resolution proposing an amendment to the Constitution in regard to the election of senators when Mr. Corliss, of Michigan, asked whether a roll call was necessary or would it be sufficient, if, in the judgment of the speaker, a two thirds vote was cast. The speaker answered that the presumption being that a quorum was present and the chair deciding that in his opinion there was a two thirds vote in favor of the measure, it was within the power of the House to test the vote but it was not necessary.

Thus if only ten members of either house were present and no want of a quorum was suggested, two thirds of the ten could pass a resolution submitting a constitutional amendment. Even when there is a quorum present, 145 members of the House and 33 members of the Senate would under such ruling be sufficient.

If 145 members of the House and 33 members of the Senate can propose an amendment to the Constitution and start it on its way for ratification by the states, that action permits 287

members or substantially two thirds of the lower house and 63 Senators, exactly two thirds of the Senate, to avoid the responsibility of deciding whether or not the amendment is necessary. It was the intention of the framers of the Constitution to require, and we believe the provision was a wise one, that the Senators and Representatives at Washington should take the responsibility of deciding, and that two thirds of them must agree that any proposed amendment to the Constitution is wise and necessary. The language of article V is mandatory and not merely permissive. Shifting of responsibility on so important a matter is full of evil consequences.

The states are interested in preserving the Constitution for their own protection and amendments ought to be jealously guarded.

The proposed prohibition amendment has never been properly passed by the National Senate and House of Representatives, and therefore it should not be ratified by the states.

III

Section 2 of the resolution proposing the prohibition amendment provides that "The Congress and the several states shall have concurrent power to enforce this article by appropriate legislation."

This provision is so clearly wrong that to make it a part of the Constitution would be a most unfortunate event. It would introduce an element of confusion in the enforcement of a great police power. No matter what views may be entertained by a person upon the subject of national prohibition, it is of the utmost importance that in respect to matters confided to the federal government that that government should have supreme power.

Constitutional authorities universally agree that the United States would never have risen to the dignity of a nation were it not for the provision that the Constitution and the laws of the United States made in accordance therewith and all treaties "shall be the supreme law of the land and the judges in every state shall be bound thereby, anything in the Constitution and law of any state to the contrary notwithstanding."

The prohibition amendment now under consideration specially confers upon the Congress and the several states concurrent power to enforce this article by appropriate legislation.

It has been held by good lawyers that the proposed amendment would extend the power of the several states over interstate and foreign commerce as it certainly extends the power

of the United States over the manufacture and consumption within the several states.

If the amendment were adopted, it would doubtless lead to grave conflicts between the federal government and the states and would give rise to antagonistic legislation between the states themselves and between the states and the United States. If it means, as it says, that "the Congress and the several states shall have concurrent power to enforce this article by appropriate legislation," and as that necessarily implies that there must be concurrent action by all the states and the United States, all agreeing on the exact form of legislation, then it would be an absurdity, for it is too much to expect that all the states and the United States would exactly agree on subjects, about which the several states are in conflict and where there is so much diversity of opinion. The subjects under consideration would be what constitutes intoxicating liquors, that is, what percentage of alcohol makes a liquid intoxicating. The range of legislation would very probably be anywhere from a fraction of one per cent. to at least five per cent. of alcohol to make a liquid intoxicating. Another subject about which the Congress and the forty-eight states would not agree would be, what constitutes "beverage purposes." There may easily be forty-nine different laws on the subject and no person would know how he stood in respect thereto, for while acting entirely according to the laws of one state, he might be acting exactly contrary to the laws of other states, and perhaps contrary to the law of the United States.

Suppose the state of New York should pass a law that it was lawful to manufacture and sell all liquors containing less than three per cent. of alcohol and suppose Congress should pass a law which should make it unlawful to manufacture and sell any liquors that contained more than one half of one per cent. of alcohol. Which of these laws should prevail? There would be no concurrent action and both laws would fall to the ground.

For the first time in the history of the United States the ratification of this proposed prohibition amendment would introduce into the fundamental law of the United States a question of power, that is, of concurrent power between the states and the nation in regard to a matter committed to the national government. It is going back to the false principles of the state rights leaders of Calhoun's time and a revivification of the old idea of condominium, which are sure to always cause trouble.

It will be noticed that concurrent power to legislate, not concurrent jurisdiction, is given to Congress and the several states.

Concurrent jurisdiction with sole power in the federal government to legislate would have been proper so far as this third point is concerned, for there would then be only one law to be enforced in either the jurisdiction of the federal courts or of the state courts.

The states already have the power to prohibit the transportation and dealing and use of liquor within themselves and the United States Congress has passed an act prohibiting the transportation of liquor into any state or through any state, where that is prohibited by the state government. The Supreme Court of the United States has approved and found the act constitutional. This law is known as the Webb-Kenyon act and by it and under it any state has full power to fully control the use, sale, transportation and manufacture of liquors, etc., within its own limits.

The very evident intent then of the proposed prohibition amendment is to force its provisions upon those states which do not want it. It is clear that in such states at least there would be endless conflict between the federal and state authorities, under this section 2 where "concurrent power" is given.

In the Thirteenth Amendment it was declared that neither slavery nor involuntary servitude, except as punishment for crime, etc., shall exist, and by Section 2, of that amendment, it was provided that "Congress shall have power to enforce this article by appropriate legislation." The same principle was applied and adopted in the Fourteenth and Fifteenth Amendments. In each the people declared the governing idea, whether positive or negative, and in each gave to the Congress in the same language just quoted, power to enforce the article by legislation. This is the simple, direct natural and clear way to draw such a provision. Why was it not followed in this case? Obviously it was not appreciated.

In cases in reference to boundary waters between different states it has been decided that where there is a concurrent power over those waters no regulation by either is effective unless consented to by the other.

In Houston *vs.* Moore (5 Wheat., 1 and 23), the judgment of the court was delivered by Mr. Justice Washington, who said that to subject citizens "to the operation of two laws upon the same subject, dictated by distinct wills, particularly in a case inflicting pains and penalties, is, to my apprehension, something very much like oppression, if not worse. In short, I am altogether incapable of comprehending how two distinct wills can, at the same time, be exercised in relation to the same subject, to be effectual, and at the same time compatible with each other.

If they correspond in every respect, then the latter is idle and inoperative; if they differ, they must, in the nature of things, oppose each other so far as they do differ. If the one imposes a certain punishment for a certain offense, the presumption is that this was deemed sufficient, and, under all the circumstances, the only proper one. If the other legislature impose a different punishment, in kind, or degree, I am at a loss to conceive how they can both exist harmoniously together."

Under the two state constitutions and the acts of Congress that admitted Oregon and Washington to the union they have "concurrent power" over the Columbia River. Both states passed laws by which they regulated the taking of salmon in the river. A man was convicted of violating a statute of Oregon, which differed from the statute of Washington in its provisions and in the punishment for its violation. In discharging the prisoner, the court said: "It is the act of concurrence between the two states in the exercise of legislative authority that validates the act and gives it the force of law, and unless there is a concurrence or assent by both states to the enactment, it cannot have that force."[2]

The section of the proposed prohibition amendment under consideration was introduced into the Senate at the very close of the debate on the principal question and it does not appear by the Congressional Record that there was any discussion upon it. It is evident that there was very little consideration paid to it.

Ex-United States Senator Sutherland, whose term expired March 4, 1917, said on this point:

> I happened to be a member of the Senate when the first draft of this proposed amendment was presented, and it was considered before the Judiciary Committee of the Senate, and at that time some of us called attention to the very objection that I am now calling attention to, and this objectionable language was stricken out, and the proposition was reported with a single provision that Congress should have power to enforce it. No vote was taken upon the proposition at that session. At the next session it was reintroduced, and it went through without any questions being raised about it by anybody and apparently without attention being called to it. This to my mind is so serious that I think lawyers who have any respect for a fundamental thing ought to put themselves on record as being against it.

IV

The seven year allowance for ratification, provided for in section 3 of the amendment, has been severely criticized, but discussion of this feature of the amendment is unnecessary except to call attention to the fact that the time within which the

[2] Ex. Parte Desjeiro, 152 Fed. 1004 (1907).

amendment may be ratified by the states does not expire until the year 1924. There is, therefore, abundant time for the states to give the matter most careful consideration.

In Conclusion

The method to be pursued by Congress in proposing an amendment to the Constitution is a mandatory, not a permissive one. Amendments to the organic law should not be submitted for adoption until that mandate has been complied with. Two thirds of both houses must deem it necessary and when that time arrives it is the duty of the Congress to submit proposed amendments and not before.

Outside of the amendments proposed by the first Congress no amendments to the federal Constitution were found necessary until after the close of the Civil War. Three amendments were then proposed and ratified. No further attempts were made until 1909 when the income tax amendment was adopted and then in 1913 came the amendment with regard to the election of the United States Senators by the people. Now in 1918 another amendment is before us for ratification. The tendency is dangerous. Where will the end be? A proper regard for the perpetuation of the union forbids a ratification of all unnecessary amendments and especially forbids a ratification of those not properly submitted.

On account first of its dangerous tendency; second, for the reason that it has never received a proper vote of Congress; third, because it gives rise to conflicting legislation, and finally, because it is inherently wrong as a part of the federal Constitution, the proposed amendment ought not to be ratified by the states.

THE RECENT WEBB-KENYON DECISION

Since this address was made the Supreme Court of the United States, in a case arising from Kansas, has decided that the Webb-Kenyon law which had previously been held to be constitutional was not affected by the fact that, on the vote in congress following the presidential veto, less than two thirds of the entire membership of both house and senate had passed the act over the veto.

In its consideration of the case the Supreme Court holds that the context of Article I., Section 7, Clause 2, leaves no

doubt that the provision was dealing with the two houses as organized, and entitled to exert legislative powers.

The court then goes on to a discussion of the practice, which has prevailed in congress and which was alluded to in the address, to the effect that two thirds of both houses means two thirds of the members present, and bases its reasoning on the fact that the practice has been continued since the adoption of the first ten amendments to the Constitution up to the present time.

While the observations of the court in respect to the method of constitutional amendments are very largely, if not wholly, outside of the real subject for decision, it is very apparent from a careful reading of the opinion that its reasoning is not principally based upon any construction of Article V. of the Constitution, which that article itself would justify, but is mainly based on the fact of the congressional practice already alluded to.

Such a practice, followed by the ratification of the amendments, which have already been ratified in the past, and acquiescence therein, would constitute a waiver of any right on the part of any one now to claim that those amendments were not a part of the Constitution. So long an acquiescence would prevent such a claim.

There was substantially no question made about the advantage and necessity of each one of the amendments so far adopted, and no question was made at the time that they were not properly passed by congress.

We know that legislators, sometimes illustrious ones, do not always comply exactly with requirements and rules in dealing with subjects on which there is no disagreement and when the point of the violation of the requirement is not raised. But such action does not ordinarily establish an acquiescence or a waiver of the right of a party, be he a State or an individual, thereafter to stand on its or his rights in respect to a matter about which there is a disagreement, and where the objection is seasonably made.

It would be a very unfortunate situation if, as the speakers of the house and presidents of the senate have ruled, a senate and a house can propose constitutional amendments when a quorum has vanished from both chambers and the absence of a quorum is not suggested and the vote is passed by two thirds of those present; a situation justified by the opinion in question.

There is a vast difference between Article I., Section 7, relating to the two thirds vote required to pass a measure over the presidential veto and Article V. which relates to the amending of the Constitution.

In the former, Article I., the matter of a quorum is mentioned in Section 5, where it is stated that a majority of each house shall constitute a quorum to do business. Of course the presidential veto has to do only with the ordinary business of congress, where only a quorum is necessary and considerably less than a quorum frequently does do business when the absence of a quorum has not been suggested.

On the other hand, Article V. deals with an extraordinary matter, as is shown by the decision in the case of Hollingsworth *vs.* Virginia, 3 Dallas, 378, referred to in the address, and where the Constitution expressly provides that "the Congress, when two thirds of both houses shall deem it necessary, shall propose amendments," etc.

The decision in the Kansas case is limited to the number required to override a veto and is not conclusive of the construction to be given to the article relating to amendments, although in its opinion the court refers to that subject. Its decision as to the veto provision has a sound foundation without any reference to the amendment provision.

The opinion of the Supreme Court in connection with the Kansas case applies only to that part of the address which relates to the second point and does not in any way affect the fundamental objection to the proposed amendment in question, to wit: that it is not germane to the Federal Constitution and has nothing to do with the principles underlying our form of government, but is merely a police regulation and one of many, which might as well claim a place in that document.

The opinion of the Supreme Court also has no bearing upon that part of the address which relates to the objectionable feature contained in the proposed amendment, that the congress *and* the states shall have concurrent power to legislate, which is dealt with under part III. of the address.

THE REFERENDUM

At the present time two of the forty-eight states have refused to ratify the proposed amendment. Two others have not yet taken any action thereon. Thirty others have taken final legislative action ratifying the amendment. The remaining fourteen have taken preliminary action but the final legislative act is deferred until a referendum, provided for in their respective state constitutions, has been had.

The framers of the Federal Constitution, when it was passed in 1787, may not have had in mind the legislative referendum, which now exists in those fourteen states but the Constitution

clearly intended that any proposed amendment must be legally ratified by the legislative action of three quarters of the states. It did not contemplate that any illegal or partial action on the part of the legislatures of the states would be sufficient.

Now it is perfectly competent for a state in its constitution to decrease or increase the number of its members or the number of its houses, either as they existed at the time the Federal Constitution was adopted or at any other time. It is entirely proper for a state to increase its house of representatives, for instance, to five hundred or a thousand, or even more, members if it sees fit. The effect of the referendum is a modification of the legislature as it previously existed. It practically increases the number of members of the legislature so far as the subject matter of the particular referendum is concerned, to the entire electorate of the state in question, and before any valid legislative action can be taken, in cases where the procedure is followed, a referendum must be had.

Of course no state, in its own constitution or laws, can change the Federal Constitution, but the action of a state in ratifying or not ratifying a proposed Federal amendment is a state action and the state has power to modify its legislative authority in any legal way and the referendum when properly sought is a legal modification of the legislative power. Until that has been had the legislative action of the state is not completed. The situation, in some respects, resembles the case where one branch of the legislature ratifies the proposed Federal amendment and the other branch does not act at all. There is thus incompleted action.

These subjects are new and have not yet been decided by our courts but because of their importance they merit the most serious consideration.

February 11, 1919

THE ECONOMIES OF SAFETY

By LEW R. PALMER

DIRECTOR SAFETY AND PERSONAL EQUITABLE LIFE ASSURANCE SOCIETY

IN order that I may direct my ammunition against the properly restricted sector of this elaborate program, I have consulted the usual authority, and am advised that "economy" comes from the Greek (*οἰκονομία*) "and implies management." We infer that the author means *good* management.

Safety, as treated in this paper, will deal with that vital

factor in good management having to do with accident prevention, and must, of necessity, in the time allotted, be restricted to a very limited area of the entire field of activity.

While it can not be claimed that accident prevention has always been recognized as essential to good business, it can not be denied that to-day it is a generally accepted fact that *safety pays.*

A striking example of the effectiveness of a well-organized and active safety department is illustrated in a chart recently published by the United States Steel Corporation, which is submitted herewith. From it we learn that in the past twelve years there have been saved from death and serious injury within the plants of this organization, approximately, 23,000 workmen.

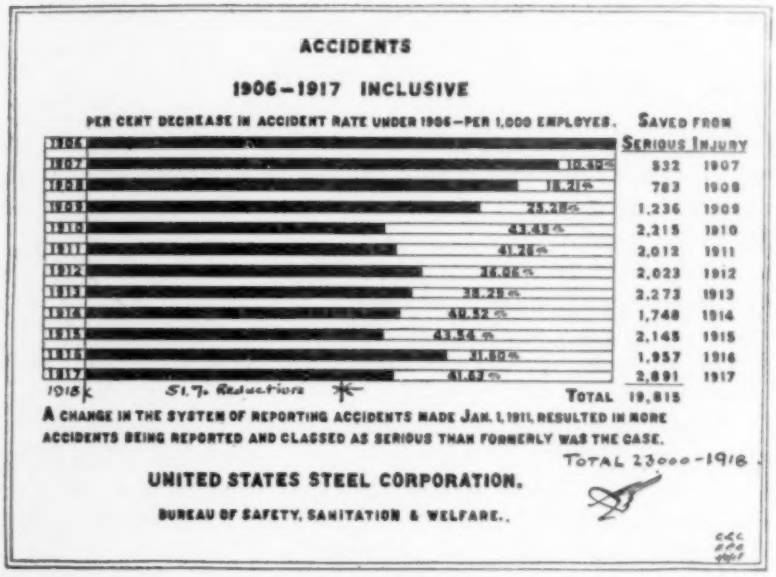


FIG. 1.

Surely, when you take account of the productive value of these workers thus saved to their task in the "trenches of labor," bearing in mind what that increased product has actually meant to our allied armies, fighting our fight for *universal safety* in the trenches "over there," all must agree that the money and effort expended in developing that safety organization had its return, and that many fold.

This highly specialized and important branch of plant management has not been the growth of a day; it has been a

gradual evolution, with many elements involved, including the patient development of methods of education in order to combat that arch enmy of safety—carelessness—by opposing it with a united front, the man cooperating with the management.

Important as has been the installation of mechanical safeguards—many of which are monuments to some fallen pioneer—and the remodeling of plant arrangement and plant equipment, the human factor—the personal equation—still holds a bridgehead in the bloody arena of accident causation.

"*How to reach the man*" is a hard-fought problem of long standing, against which we have repeatedly directed our major offensives; on which we have trained our big guns, and, I fear, wasted not a few highbrow speeches.

However, when men of large caliber, vision and practical experience, direct the bombardment, entrenched carelessness and indifference must surrender to habits of caution.

These mass meetings, or safety rallies, to be of permanent value, should be reinforced with the rapid and continuous fire of education that comes from well-directed foremen's meetings, interspersed with the hand-to-hand personal contact of the workmen's committees. This should, in a large measure, insure that development of plant morale necessary to put safety "over the top."

In a recent bulletin published by the United States Bureau of Labor Statistics on "The Safety Movement in the Iron and Steel Industry," appears an interesting chart showing the variation in accident frequency as compared with the coincident variation of employment.

It will be noted that, following the period of minimum employment (at which time there was a parallel depression in the accident curve), with the introduction of new men came an increased accident frequency. This was to be expected, as it is in accordance with past experience.

However, the accident frequency was soon checked and the curve eventually brought down, even at a time of maximum employment, to a point as low as the best record at any period of minimum employment.

To those who have had experience in dealing with the new-man problem as related to accident frequency, this will appeal as a really remarkable achievement, and to my mind proves without a doubt that safety organization, even in the face of unprecedented stress of war work, has "made good."

It might be added that, when these figures have been brought up to date for the year 1918, they will indicate that

there has been a further reduction as compared with the already good showing for 1917.

Many agencies have been active in the development of the safety movement to the point where we find it to-day. It was out in the Pittsburgh district where, according to tradition, "mules were once held of more value than mortals," that a group of engineers, in cooperation with some contemporary insurance officials, sowed the seed that brought to life the National Safety Council, which stands to-day as one of the foremost accident prevention organizations in existence.

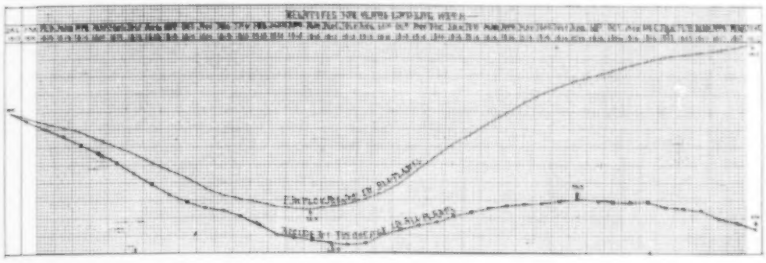


FIG. 2.

Allied with the Safety Council, we have had the American Museum of Safety, a pioneer in promoting the "safety spirit" throughout the industries of this country, which, by holding exhibitions of safety and sanitation, distributing safety publications, and making special investigations on sanitary and safety conditions, has exerted an educational influence of marked value.

Focusing the industrial thought and purpose upon this special branch of plant management soon revealed the fact that, as we had been sadly negligent in conserving our minerals, forests and other natural resources, so had we been woefully wasteful of the lives and limbs of our industrial workers; and we were awakened to the realization that this annual toll of life and limb was not the sad necessity we had believed it to be, but that, by the proper application of organized effort—purpose plus money—amazing reductions in accident frequency could be effected.

From such records as were available ten years ago, we were shown that in the neighborhood of 35,000 fatal industrial accidents occurred each year, carrying with them approximately 2,000,000 disabling accidents for a like period.

In the light of the new day, with its avowed purpose to eliminate waste, the safety movement has played its part, and

to-day it is estimated that the annual rate of fatal industrial accidents has been reduced to approximately 22,000, with a corresponding reduction in the disabling accidents.

To measure this enormous accumulative saving in our nation's man power by a money standard is quite beyond me, but I feel sure that none can deny it is of such unquestioned economic value that we can never again fail to take it into account.

For—is not
An accident prevented—
many dollars saved?
An accident prevented—
a productive life or limb conserved?
An accident prevented—
uninterrupted, therefore, increased production?
An accident prevented—
a father saved to his family?
a family saved from charity?
An accident prevented—
a mine well ventilated?
a thousand happy homes?
a million dollars saved?
An accident prevented—
a high explosive plant properly located?
a town still on the map?
An accident prevented—
a boiler filled with water?
a plant still in operation?
An accident prevented—
an engineer educated to caution?
"The Limited" at its destination?
the passengers home in safety?
the railroad's first duty fulfilled?
Is not accident prevention the *best* and *cheapest* compensation?
Is not the White Cross of Prevention an even greater national asset than the Red Cross of First Aid?

The good results accomplished in the field of accident prevention have encouraged the extension of the plan of obtaining mutual benefits through cooperative effort. In fact, safety has been the entering wedge whereby a better understanding can be developed between the employer and the employee. With it must come a frank discussion of one vital problem, the solution of which works for their mutual benefit.

Having found that the cooperative plan really works for the good of all in this one instance, does it not stand to reason that the circle of application will grow, become larger and larger until, through faith in each other, the contending forces will be led out of the wilderness of strife and misunderstanding

into the promised land of industrial peace? Thus made a fact through a square deal for all.

Great as has been the achievements of the past, far greater is the promise of the future.

Though the most part of my ammunition has been directed toward the industrial sector, I feel it is not out of place to "drop a few" out there in the wider areas of the field of battle where the major offensives of the future will be staged and fought to a successful conclusion:

Why should the public be allowed to waste 60–75 yes and, unless checked, soon 100,000 lives annually?

Why not develop closer cooperation between all accident prevention agencies, and eliminate the waste of duplication?

Why not, through a further cooperation between the states and the casualty companies, prevent more, and compensate less?

Why should life insurance companies pay millions of dollars in untimely death claims when, by united effort, millions of lives can be extended?

Why not educate our children to live through carefulness rather than die by carelessness?

Why do tires still skid for the want of chains?

Why not reduce labor turnover and save lives as well as money?

Why reconstruct the war cripple and allow the industrial cripple to go to the bread line, or even further down?

Why, though "The lips of the righteous feed many," should "Fools (still) die for the want of wisdom"?

Why not! yes, *Why Not?* end *War* with a LEAGUE OF NATIONS?

For, does not *Universal Peace* go hand in hand with *Universal Safety?* Once that goal is attained, is it not truly worth safeguarding with the protecting power and cooperative support of such a *World League?* How else can we compensate for the appalling sacrifice already made? Who dares stay the hand that writes?

STOP! LOOK!! LISTEN!!!

And—"*These Sacred Dead Shall Not Have Died in Vain.*"

AN ENTOMOLOGICAL CROSS-SECTION OF THE UNITED STATES[1]

By Professor J. CHESTER BRADLEY

CORNELL UNIVERSITY

WELL that was an idea worth thinking about, any how. It had rather an appeal to it, which in its way was quite irresistible. So we did think about it and talked about it and dreamed about it, and assured each other that we were only dreaming, but then "quien sabe"? There was the Buick which one of us very much wanted to have in California with him the next fall and winter, and here were we, three greenhorns, almighty anxious to see the length and breadth of the land between, not swiftly from a car window, but leisurely, day by day, dallying here or there, investigating, collecting, prying into the secrets of the country.

So the idea grew. Our friends were interested, would like to go along. Certainly! We would merely add a Ford, then two, then three, then a trailer. Well! Well! the matter was growing serious, positively the party must not be larger. Then came the dark cloud of war, which left us uncertain whether to go at all, and took the pleasure out of planning. At last it was clear that since some must go to the coast any way, and some awaiting draft could spend the *interim en route*, and that the work of others would not be affected, our plans should "carry on" and so we started.

Who were we? Reader allow us to introduce ourselves. Dr. Albert H. Wright, assistant professor of vertebrate zoology in Cornell University and special agent of the U. S. Bureau of Fisheries. High-sounding titles don't make a zoologist, but no one would accuse him of needing them if they were to watch his dauntless enthusiasm in wading through mudholes after frogs and fish. Mrs. Wright, whose interests are largely botanical and photographic, always managed to chase the glooms away and laugh us all out of the grouches which threatened to settle on us when the Fords misbehaved themselves. Dr. Anne H. Morgan, head of the department of biology at Mt. Holyoke College and May-fly expert. Gracious! how the young

[1] I am indebted to the following persons for notes on the specimens collected during our trip: Dr. W. T. M. Forbes, all the determinations of Lepidoptera, Dr. Bequaert, Hymenoptera; Mr. Knight, Hemiptera; Mr. W. T. Davis, Cicadidæ; Dr. Wright, vertebrates. I am also under obligations to Dr. Munz, Messrs. Shannon and Ralph Wheeler, Mrs. Wright and Prof. E. O. Essig for photographs reproduced; and to Dr. and Mrs. Wright for assistance with the manuscript and proof.

MAP OF ROUTE OF CORNELL UNIVERSITY BIOLOGICAL EXPEDITION, MAY–SEPT, 1917. NIGHT CAMPS ARE EACH NUMBERED TO CORRESPOND TO THE DAY OF THE MONTH, AS INDICATED IN THE ACCOMPANYING TABLE

ROUTE OF CORNELL UNIVERSITY BIOLOGICAL EXPEDITION, MAY–SEPT, 1917.
NIGHT CAMPS ARE EACH NUMBERED ON THE MAP TO CORRESPOND TO THE DAY OF THE MONTH, AS INDICATED IN THE FOLLOWING LIST

Month	Day of Month	Day of Trip	Miles Travelled	Total Mileage	Town Nearest Night Camp	State
May	24	1	42	42	Owego	N. Y.
"	25	2	90	132	Scranton	Pa.
"	26	3	48	180	Bartonville	"
"	27	4	113	293	Collegeville	"
"	28	5	111	404	Baltimore	Md.
"	29	6	74	478	Alexandria	Va.
"	30	7	59	537	Fredericksburg	"
"	31	8	97	634	Petersburg	"
June	1	9	32	666	Dewitt	"
"	2	10	73	739	Soudan	"
"	3	11	99	838	Gibsonville	N. C.
"	4	12	169	1,007	Broad River	S. C.
"	5	13	101	1,108	Andersonville	"
"	6	14	88	1,196	Athens	Ga.
"	7	15	68	1,264	Stone Mountain	"
"	8	16	144	1,408	Auburn	Ala.
"	9	17	31	1,439	La Place	"
"	10	18	128	1,567	Flatwood	"
"	11	19	73	1,640	Leroy	"
"	12	20	78	1,718	Theodore	"
"	13	21	55	1,773	Biloxi	Miss.
"	14	22	53	1,826	Bay St. Louis	"
"	15	23	91	1,917	Covington	La.
"	16	24	117	2,034	Burnside	"
"	17	25	62	2,096	Schriever	"
"	18	26	52	2,148	Berwick	"
"	19	27	90	2,238	Near Cade	"
"	20	28	87	2,325	Sabine River	"
"	21	29	62	2,387	Devers	Texas
"	22	30	93	2,480	Richmond	"
"	23	31	35	2,515	Wharton	"
"	24	32	70	2,585	Victoria	"
"	25	33	73	2.638	Gilett	"
"	26–29	34–37	85	2,743	New Braunfels	"
"	30	38	54	2,797	Helotes	"
July	1	39	80	2,877	Sabinal	"
"	2	40	117	2,994	Devil's River	"
"	3	41	69	3,063	Juno	"
"	4	42	106	3,169	20 miles west of Sheffield	"
"	5	43	83	3,252	30 miles east of Alpine	"
"	6	44	77	3,329	Davis Mountains	"
"	7	45	60	3,389	Valentine	"
"	8	46	86	3,475	Sierra Blanca	"
"	9	47	63	3,538	Fabens	"
"	10	48	78	3,616	El Paso	"
"	11	49	24	3,640	Mesilla Park	N. M.
"	12	50	68	3,708	7 miles east of Deming	"
"	13	51	71	3,779	Lordsburg	"
"	14	52	56	3 855	Bowie	Ariz.
"	15–18	53–56	58	3,893	Ft. Grant	"
"	19, 20	57, 58	60	3,953	Texas Pass	"
"	21–23	59–61	54	4,123	Tucson	"
"	24	62	52	4,059	Oracle	"
"	25, 26	63, 64	27	4,086	Mt. Lemon	"
"	27	65	0	4,086	Congdon's Mine	"
"	28	66	84	4,170	Florence	"
"	29	67	50	4,220	Near Higley	"
"	30	68	93	4,313	Canon	"
"	31	69	87	4,400	Del Rio	"

Month	Day of Month	Day of Trip	Miles Travelled	Total Mileage	Town Nearest Night Camp	State
Aug.	1, 2	70, 71	171	4,571	Grand Cañon	Ariz.
"	3	72	94	4,665	Williams	"
"	4	73	61	4,726	Prescott	"
"	5	74	113	4,839	Beardsley	"
"	6	75	43	4,882	Avondale	"
"	7	76	61	4,943	Gila Bend Mts.	"
"	8	77	56	4,999	20 miles west of Palomas	"
"	9	78	28	5,027	Wellton	"
"	10	79	71	5,098	Sand Hills Colorado Desert	Cal.
"	11	80	61	5,159	Coyote Wells	"
"	12	81	19	5,178	Jacumba	"
"	13	82	28	5,206	Warren's Ranch	"
"	14	83	98	5,304	Torrey Pines	"
"	15, 16	84, 85	68	5,372	Laguna	"
"	17	86	62	5,434	Claremont	"
"	18	87	77	5,511	Saugus	"
"	19	88	115	5,626	Bakersfield	"
"	20	89	93	5,719	Lindsay	"
"	21	90	60	5,779	Giant Forest	"
"	22–26	91–95	0		Alta Meadow	"
"	27	96	0		Giant Forest	"
"	28	97	99	5,878	Fowler	"
"	29	98	118	5,993	Ripon	"
"	30	99	98	6,094	Berkeley	"

ladies at the college would have stared to have seen their revered professor after May flies, dressed in—but there, I must introduce Professor George B. Upton, of the engineering college, who was the chief of staff of our mechanical crew, and whose zoological interests ran to ornithology and shooting lizards. Mr. Harry H. Knight, hemipterist and especially keen

"EZRA CORNELL" AND THE TRAILER. On to the left running board of the Buick we had built a large metal box in which we carried articles likely to be needed during the day, and especially the noon-time lunch, thereby avoiding the necessity of unpacking the trailer en route. Forward of it, on the running board, is a five-gallon can for reserve gasoline, and a ten-gallon water can. After two experiences with broken springs, we carried the piece of scantling beneath the trailer to use in place of a broken spring if occasion arose.

"THE JOHN HARVARD." The plant presses strung across the radiators were a source of curiosity to those whom we met, but the plants dried splendidly in such a place. Two of the cans carried water, one gasoline, and one formaldehyde for preserving reptiles. The gasoline pressure lantern, when used at night, gave a very brilliant illumination, for making bird skins, putting up specimens, etc.

for Capsidæ, was our second mechanician and Ford driver. Dr. Philip Munz, really a dragon-fly man, devoted his time almost entirely to collecting plants. We were all very glad to have a botanist along, as it gave us an opportunity to learn something of the flora that we should otherwise scarcely have had time for. Mr. R. N. Lobdell also collected plants, but spent most of his time with birds and mammals. Mr. Raymond Shannon, recently of the National Museum, was our specialist in Diptera, and many a fine catch he made. Dr. Joseph Bequaert, of the American Museum of Natural History, was also dipterist enough to fraternize with Shannon in gloating over their good finds, but Dr. Bequaert is more particularly an hymenopterist. He, with Dr. Wheeler and the writer made a trio of three Hymenoptera fiends, and how we did catch the ants and bees and wasps! Especially Dr. Bequaert, who it seemed was out and catching some rare specimen every time we stopped to read a road sign. Dr. William Morton Wheeler needs no introduction to entomological readers. It is our one regret that he and his son Ralph were not able to join us until we reached El Paso. Paul Needham collected dragon-flies and Neuroptera to send to his father, Dr. J. G. Needham, but his own interest was in butterflies.

It was our plan to camp out at all points, and this plan, I

may say, was rigidly adhered to. But it increased our baggage difficulties. It was no easy matter to provide for carrying thirteen people with their personal baggage, camping outfit, garage supplies, collecting outfits and provisions in two Fords and a Buick even with a good big trailer to help out. We built large running board boxes and used every spare inch of space, shipped much goods ahead, and still were overloaded. The third day out we had an "elimination" party. We shipped back half a trailer-load of baggage, shipped a great deal forward, and still were overloaded. Little by little we eliminated the unessentials until gradually we had a reasonable load. Meanwhile we were gaining rapidly in experience and systematizing our camp life, our work and our packing.

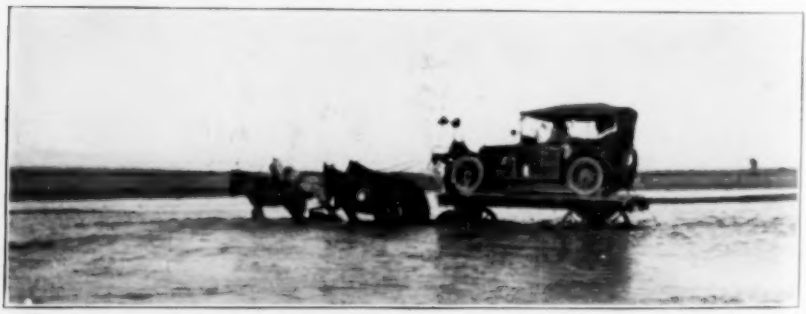
We left Ithaca on the twenty-fourth of May, headed south. The weather was still cold, raw and disagreeable. The first night camp was along the Susquehanna River near Owego. Crossing the Pocono Mountains and down through Allentown and Valley Forge, we arrived at West Chester, Pennsylvania, in a pouring rain. In Maryland we found the trees in full leaf and bade good-bye to bad weather with the last real hard rain that we were destined to see for a long time. Near Baltimore, Mr. Knight found many specimens of a tingid, *Corythuca ulmi* Osborn and Drake (ident. by Drake) on the leaves of *Ulmus fulvus*. At Washington we were joined for a day by Mr. Francis Harper, of the Biological Survey, who took us to a most delightful camping place near Alexandria. With the north behind us and good weather at hand, we felt that our trip had now really commenced, and for the first time were able to do

A Sandy Wash in the Yuma Desert near Wellton. The car is not, as might appear, taking a cross country jaunt, but is on the main New Orleans to San Diego auto road.

some real collecting. As we were seriously behind our schedule, however, we did not then, nor for a long time thereafter, feel free to linger where the country appealed to us, but were always under the necessity of hurrying on. It was from the start our plan to make a quick trip as far as New Orleans in order to have the more leisure beyond.

I had devised a trap lantern to work with the spot-light of the Buick car. It consisted of a cylinder of tin which fitted on to the spot-light, and the forward end of which was closed by a funnel of celluloid, with a two-inch opening through which the insects could pass into the chamber in front of the light. This chamber was connected with a very strong cyanide jar, made of a pint mason jar, which could be unscrewed from beneath the trap. I put this trap into operation first at Alexandria with very gratifying results. Thereafter I burned it nearly every night throughout the rest of the summer, reaping a harvest of the most astonishing abundance and variety, not only of Lepidoptera but also of Diptera and Coleoptera, and later of nocturnal Mutillidæ, which was what I was chiefly after. The Lepidoptera catch was so good and in such perfect condition, that I devoted to them all possible attention, spending often an hour or two of each morning in pinning them up, and am glad to say they reached the laboratory in fine shape. At present Dr. Forbes is engaged in studying them, and I have enthusiastic reports about them. Our first night's operation of the trap lantern, shining among the bushes on the edge of an open grove of young trees on a grassy knoll, yielded the very striking pink and yellow pyraustid, *Diasemia roseopennalis*, a far from common insect; the rare noctuid *Caradrina tarda* Guenée, and a good series of the recently described *Perimede particornella*.

Between Alexandria and Fredericksburg we passed through



CROSSING THE GILA RIVER AT FLORENCE, ARIZONA.

A Muddy Road through the Chopawamsic Swamp in Virginia.

what proved to be, with one exception, the worst stretch of road between the Atlantic and Pacific. It was the notorious Chopawamsic Swamp near Occoquan, a stigma upon the fair name of Virginia. That such a mudhole should be tolerated within a day's ride of our national capital, blocking the main, almost the only, highway between north and south would be unbelievable if it were not so well known. While native harpies stood around eyeing us and chewing, ready with horses and tackle to pull us through for a goodly fee, we worked and sweated, pulling, pushing, shoveling, urging, broke a spring on the Buick, but finally got through and what is more, helped several others to get through, which made us quite unpopular with the natives. Females of *Vespa carolina* were common at the edge of the woods, searching for a nesting site. No workers were seen. At Fredericksburg Knight found *Corythuca arcuata* Say (identified by Drake) on oak. The trap lantern yielded, among other things, the uncommon noctuid *Ulolonche modesta* Morrison, the only eastern species of its genus.

The first of June found us in Petersburg. Amongst the trap lantern catch at this place appeared *Tetanolita mynesalis* Walker, and *T. floridana*, interesting noctuids of the subfamily Hypeninæ; *Ozarba æria* (a noctuid), the rare geometer *Priocycla decoloraria* Hulst, which was not represented in the National Museum collection at the time of publication of Dyar's list, the Crambid, *Diatræa zeacolella*, and the brilliant nolid, *Nigetia formosalis*.

Dr. Bequaert and I put in our best collecting these days at the noon stops for lunch, but the time available was little. On June 2, at South Hill, Virginia, were numerous bees in the flowers of *Senecio malli*. A shower near Gibsonville, North Carolina, on the following day was the last rain encountered until we reached western Texas. The country between had long been suffering severe drought, and nearly all garden truck was utterly ruined. This made difficult the purchase of fresh fruit and vegetables upon which we had been counting. A

THE COLORADO DESERT AT COYOTE WELLS, CALIFORNIA. Looking southward into Mexico, from very near the International Boundary. The mountains are the Coast Range and form the western boundary of the desert.

like difficutly in obtaining milk was a source of continual amazement and disgust to those of us who were not used to southern ways. These members of our party were furnished a never-ending source of amusement in the open interest and undisguised curiosity in regard to our party manifested whenever we happened to stop. Although we were following the advertised lines of various auto "highways," nothing seemed to be more novel to the citizenry than transcontinental autoists. At each halt, especially in small towns, we were quickly surrounded by a curious but good-natured throng, who naïvely put to us whatever questions happened to occur to them, passed

CAMP IN THE DESERT NEAR SHEFFIELD, TEXAS. At night we would drive a short way from the road, and camp without further formality than to spread our blankets.

critical judgment upon our outfit and cars, and took keen delight in commenting to each other upon their probable sensations, if they were to take such a trip as ours. Net in hand, I was one day attentively regarding a bush along the road, when a lady passed, escorted by a gentleman. Her interest was all in what I was doing. I could hear her words, "My curiosity is getting the better of me, Jim! My curiosity *is* getting the better of me, Jim! My curiosity IS getting the *better* of me." But evidently she came off victorious, for strange to say they did not stop.

PHOTOGRAPHING A RATTLER AT BOWIE, ARIZONA, and the snake.

Our road led through Greensboro and Charlotte, North Carolina, Blacksburg and Spartansburg, South Carolina, into Georgia. *Raphiptera minimella*, a crambid, appeared in the trap lantern catch near Anderson, South Carolina. At Athens, Georgia, we were most hospitably entertained by Dr. J. M. Reade, professor of botany at the university, who accompanied us to Stone Mountain. Here the writer felt at

THE ENDLESS ROAD. Entering Musquiz Cañon in the Davis Mountains, Texas.

home, for it is to him an old and cherished collecting ground. On the bare rocks dwell a very interesting grasshopper, *Trimerotropis saxatilis* MacNeill, closely imitating the color of the rocks, even speckled with the green of the lichens with which the rocks are covered. The imposing spectacle of the north face of the mountain, like a huge Zeppelin at rest, a mass of bare granite, held a new interest, for workmen had started the heroic bas-relief figures of confederate heroes that are to cover it.

IN THE CATALINA MOUNTAINS NORTH OF TUCSON, ARIZONA, the autos yielded their load to slowly plodding burros. "Desert Canaries," the prospectors call them.

For night collecting, in addition to the trap light which I have described, we very generally made use of another device, the idea for which was derived from an article by H. S. Barber in the *Proceedings* of the Entomological Society of Washington (Vol. 13, pp. 72–73). It consisted of a tent of cheesecloth, four feet high, stretched over a pyramidal frame of eight wires, which could be taken apart and packed in a bundle. Four more wires formed an inner pyramid, two feet in height, which

CROSSING THE SABINE RIVER, with keen anticipation we set forth at last on the soil of Texas.

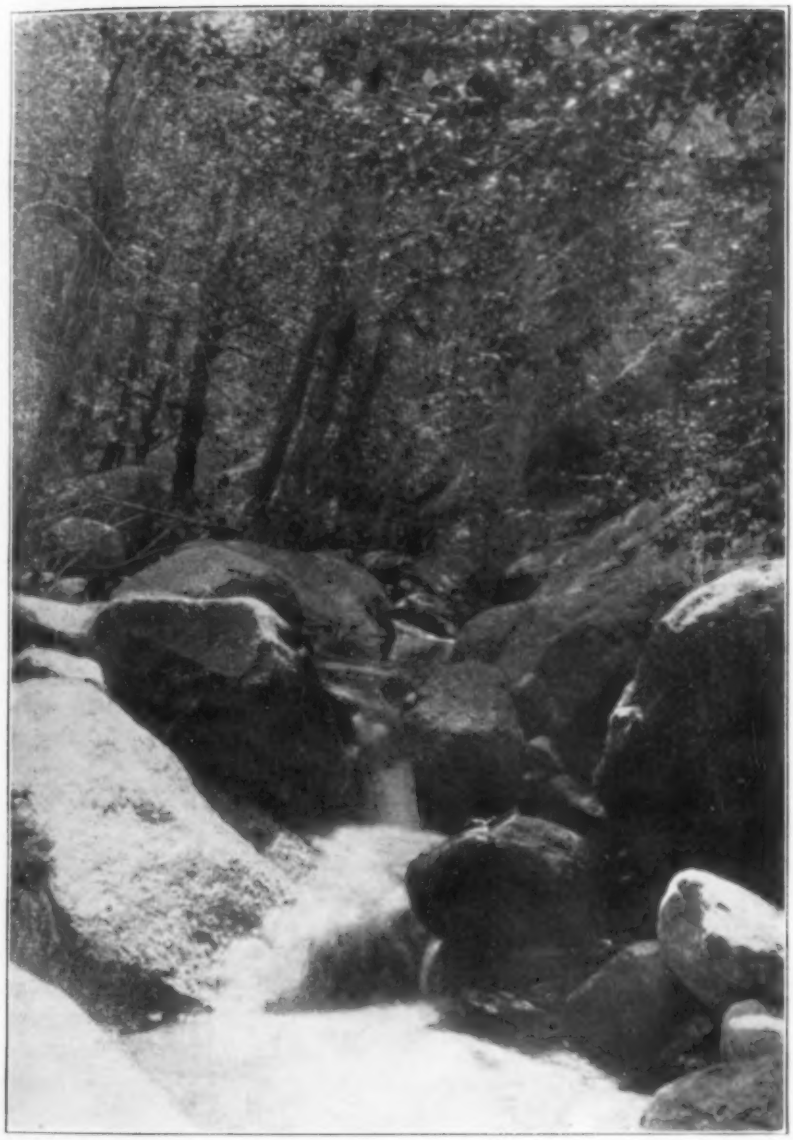
supported an acetylene burner, connected by a rubber hose with the prestolite tank of one of the Fords. The tent could be set up in a favorable situation, and never failed to draw a varied assortment of flies, moths, Hemiptera, Coleoptera, ant-lions, some grasshoppers, male ants, an occasional cicada, etc. Later on, in the west, it brought innumerable males of *Brachycistis* and *Chyphotes* (Myrmosidæ) and of *Photopsis* (Mutillidæ). It proved a very popular evening pastime to sit around this tent and pick off rarities. In the desert countries wind scorpions (Solpugida) were always to be found scurrying around it. Sometimes after an evening in which the insects were very numerous, we would turn the tent inside out and crowd it into a large cyanide can. Then after the catch was stilled what quantities of things were to be found! Of course

the moths were largely ruined with that treatment. Some time I hope some *Lachnosterna* enthusiast may have the pleasure of rejoicing over his part of our nocturnal catches, and it will be no small share.

At Auburn, Alabama, we had a most delightful visit with Dr. J. W. Robbins, professor of botany in the Agricultural College. There was very good collecting on the flowers of *Ceanothus americanus* and of *Asclepias tuberosa*. In the trap lantern catch a prize appeared, a moth of a species which has subsequently been described by Barnes and McDunnough as *Lithacodia indeterminata;* also *Eois demissaria*, a good geometer.

South of Montgomery the road led through a wilderness that would delight one's heart. Perhaps the best of it was where we camped the night of June 11, two miles south of Leroy on a small stream flowing into the Tombigbee River. We had left the rolling red clay hills of the Piedmont Plateau behind us, and were in the sandy, piney woods of the coastal plain. A very sandy approach to an old negro church offered a good spot to pitch camp. To my great delight I soon found that this sand was the home of great quantities of Mutillidæ, which I spent all available time in collecting, males and females. *Calopteryx apicalis* lent a touch of tropical brilliancy to the foliage along the clear stream of black water, water the color of strong black tea. After supper we could not resist the lure of this stream with its sandy banks, and several of us had a fine swim; also washed our clothes. *Diachlorus femoratus*, the "yellow fly," was abundant and bloodthirsty, a perfect nuisance when bathing in the river. The spot was rich in horse flies: *Tabanus americanus* and *T. flavus*, the last-named species on the wooden walls of a house and in the tents in the morning. The trap lantern caught some fine crambids: *Raphiptera minimella* Robinson and *Iesta lisetta* Dyer. The previous night at Flatwood, we took *Diallagma lutea* Smith, representing a genus of Noctuidæ, hitherto unrepresented in the collection of Cornell University.

The Buick had now developed another broken spring, and was obliged to hobble along as far as New Orleans with one side propped up on timbers. Some day you may ask Mr. Shannon how it felt, riding over that wheel across the chuck holes of Mississippi. At Mobile we turned west along the Gulf, camping near Theodore. Here an interested lad of the region offered to guide some of us to "a fine swimming hole." *En route*, stimulated doubtless by the unusual features of our



POST CAÑON IN THE PINALENO MOUNTAINS. The charm of the forest-clad cañons and the upper slopes of these desert mountain ranges, so arid looking from below, is one of the desert's most charming surprises.

pursuits, he expounded upon philosophy in the following fatalistic words: "Live and larn, then die and fergit it all." But he was evidently less of a swimmer than philosopher, for the "swimmin' hole that us kids all goes in" was at most 15 inches deep and fifteen feet in diameter!

Across the road from our camp, some peculiar alligator-like grunts proved to be emanating from the southern bullfrog, *Rana grylio*. This species was described only about fifteen years ago. Its note is altogether different from that of our northern species.

Beyond Biloxi we camped on the beach, and wading out at dusk, kept going and going and going, and still the water was less than waist deep. We had gone out a quarter of a mile or more, when slowly, gracefully, between us and the shore, rose up and turned under, a great, huge fin! If the ichthyologist hadn't been along we might have said a shark, but he insists it was a porpoise, so in the interests of scientific accuracy we'll let it go at that. Here the trap lantern yielded *Hypenopsis macula*, a genus and species of Noctuidæ of uncertain relations, not represented in the university collections, a pyralid of the genus *Patissa*, subfamily Schœnobiinæ, that is probably undescribed and four specimens of a crambid with erratic venation and wing-form which Dr. Forbes believes represents a new genus. Another very interesting catch was *Diatræa evanescens*, described by Dr. Dyar as new to science at about the very time of our trip. This species we again caught at Schriever, Louisiana, and Richmond, Texas.

Crossing the Pearl River by ferry into the state of Louisiana, we lunched, June 15, near its west bank. Here is a typical bottom land, with cypress, black gum and other trees festooned by the great hanging llanos of bullace. Just the spot we thought for *Chlorippe*, so Paul Needham and I set off in search. We did not find any, but Paul did find our first *Thecla halesus*. Those who have seen this magnificent butterfly in the field will appreciate his abandoned delight. Surely we have in this country no more beautiful creature, with its brilliant azure wings and rapid darting flight. We also found on the cypress trees specimens of a beautiful new membracid, both here and again the following day at Colyell. Dr. Funkhouser has subsequently described them as *Stictolobus trilineatus*.

At Covington, Louisiana, we left the two Fords and the trailer to cross over some very wild country to Donaldsonville on the Mississippi River, while the Buick ferried across Lake

ONE OF THE FORDS. The streams of the desert rise with surprising swiftness after a rain, but drop again quite as suddenly.

Ponchartrain into New Orleans to have put in a new spring. This accomplished, we rejoined the Fords and started west from the river, June 17. The Fords had had some rough going, through dried-out cypress swamps, and the folks had had an interesting experience with moonshiners. Evidently the zoologists found good collecting, too, as it evidenced by the following passage from Paul Needham's diary:

> Ate dinner by a little stream, and it was here Dr. Wright went crazy. He drew a seine in it and caught everything he was after. He was chasing around, grabbing snakes, turtles, crayfish and frogs. In his great joy he heaved my net into the creek, and beat it away, yelling, after another snake. . . . Mrs. Wright had called dinner, but no dinner for him. He was giving orders, chasing snakes, catching frogs and so on. He ate his dinner on the way in the car.

That, multiplied by several, is not a bad picture of many of our noon-day stops. We always tried to pick out a favorable spot, and then after a hurried meal, devoted a specified amount of time to collecting. Invariably we made good and often exciting discoveries. Each man, working for his special group, would just be finding things of the greatest interest when honk-honk would go the horns and we would have to be off.

At Schriever, Louisiana, the trap lantern yielded some interesting species, among which may be mentioned two beautiful specimens of *Lophosis labeculata*, a crimson geometer with yellow border starred in Dyar's list as lacking in the U. S. National Museum; *Menopsimus caducus* Grote, probably our smallest noctuid, if indeed it is truly one at all, originally described from New Hampshire and here rather out of its known range; the female of a new species representing a new genus of herminiid deltoid (Noctuidæ) of which we were to take the male a few nights later; the species looks like a geometer. We also took *Chloropteryx tepperaria* Hulst, a fine geometer of neotropical affinities, the only species of its genus and previously represented in the university collection by a mere fragment; moreover, Dyar's list indicates that it was not represented at all in the National Museum. *Ampelopsis arborea* yielded good returns of Hymenoptera.

At Berwick we watched a shrimp catcher at his work, but found a backyard full of mink far more interesting. The owner took us in and they certainly were fascinating to watch. They crawled about over everything, and were particularly fond of climbing along the roof of an old shed, peering over the edge and watching one with their tiny black eyes. Here we caught the only North American endotrichid, *Neodavisia singularis* B. and McD. recently described from Florida.

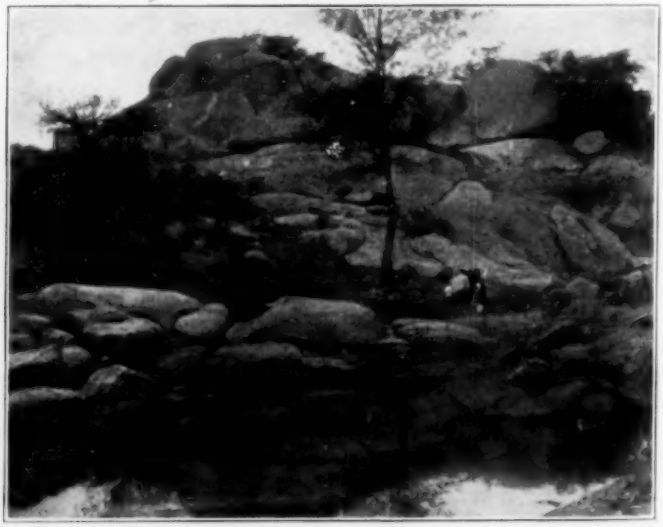
UPS AND DOWNS NORTH OF PHŒNIX, ARIZONA.

From New Iberia we drove out to Avery Island, a bird sanctuary owned by Mr. McIlhenny. Here a heronry, tenanted by thousands of birds of several species, was a most interesting sight. There were numerous nests with young of various stages, upon which Mr. Shannon was very anxious to discover some Hippoboscidæ, but he had no success.

Much of Louisiana we found quite different from other communities. The French villages and planters, the great sugar plantations and the rice fields were novel to our experience. The never ending road took on new turns and twists, and especially endless right angle jogs through the interminable cane fields. In the villages, as main-and-only-street, it became the playground of swarms of children and domestic or semi-domestic animals and along it daily at four in the afternoon commenced the promenade of multitudinous hens. I suppose all autoists have noticed this habit of our domestic fowls to swarm forth on to the road for a sociable time as the afternoon begins to wane. In this particular region the custom seemed to have become established as chief social event of the chickenry and was even participated in by the hogs and the dogs.

Our night's camp was in a pasture hidden by a massive hedge. It contained many patches of the most beautiful cherokee roses. Mine host, who came down to bid us welcome, was a Frenchman, and a very serious-minded fellow. He discoursed with Mr. Lobdell at length upon the ethics of hospitality, offering it as his opinion that it was one's Christian duty to make the traveller welcome.

The following night our camp was quite without a parallel. Approaching the Sabine River the road was built up for several miles across the most splendid cat-tail marsh. We had several close-up views of some Florida gallinules, and also saw an alligator. A dozen rods before we came to the river at the ferry was a tiny elevated spot with a few trees around it, to one side of the road. Here we camped, while the mosquitoes made merry. Next morning, before starting, Dr. Bequaert and myself found excellent collecting on several kinds of flowers in the swamp and along the road. These were being visited by several kinds of bees. One fine large black species, *Emphor bombiformis*, was nesting in the black level clay of the road; the entrances to the galleries were protected by short, vertical chimneys of clay; the bees were visiting flowers of *Hibiscus oculiroseus*. During the night the trap lantern had been accumulating a catch of unusual interest. Among many others may especially be mentioned the following: *Celama sorghiella*, a nolid moth not represented in the Cornell University collection; the male of the undescribed genus and species of



TEXAS PASS.

TEXAS PASS, DRAGOON MTS., ARIZONA. In this spot, suggestive of the Garden of the Gods in its fantastic rocks, we found many interesting species, some of the most notable being *Amblychila baroni*, and a large series of *Crioprosopus magnificus*.

noctuid of which we had taken a female at Schriever; a tineid near *Opogona* probably undescribed, and without close relatives in this country; a female of the enormous Pyralid, *Schœnobius maximellus*, and a series of the somewhat smaller, *S. sordidellus; Eoreuma densellus* Zeller, a crambid; *Ozarba æria;* three noctuids, *Arzama densa, Cobubatha luxuriosa* Sm. and *Tetanolita floridana*. This last is listed as occurring in Florida and Texas. We took it at localities all the way from Virginia to here, but not farther west.

Crossing the Sabine River, we entered Texas June 21, twelve days behind the schedule which we had outlined for the trip. We were all very enthusiastic, for from now on the collecting might be expected to yield the most interesting possible results. Ahead lay the deserts and arid waste lands. The car drivers looked forward to new experiences in driving over roads which must be very different from those of their previous experience and all were impatient for the transition from the humid country to the arid.

At Devers where we spent the night, the trap lantern collected our first specimens of a not uncommon Texan lithosiid: *Comacla simplex* Walker, which however represented a genus and species new to the university collections. We subsequently took the species at several localities.

We lunched on the twenty-second along the San Jacinto River. There is a fine growth of heavy woodland along the stream. The beautiful clear water and white clean sand bars proved an irresistible attraction for a swim. The bars were swarming with Cicindelas of two species, of which we caught many. The camp that night on an embankment overlooking the Brazos River, opposite the town of Richmond was, entomologically, an unusually fine one. Dr. Bequaert and myself had been long impatient to find the first male nocturnal Mutillas. This group of Mutillidæ is very abundant in the southwest, but with the exception of two species, is unknown from east of Texas. The two more easterly forms have been taken very rarely (both by the writer) in Georgia and one in Alabama. We were not so fortunate as to take either of these species this trip, but here, almost our very first night in Texas, we took one of the western forms and also males of a large species of *Eciton*, one of the legionary ants. *Comacla simplex* and *Diatræa evanescens* were also in the catch again. The next morning, along the river, collecting was very good, especially for Mutillidæ and aculeate Hymenoptera. Butterflies of several interesting species were also abundant. Within a few feet of our tents we caught two copperheads, and in knocking a log to pieces to get one of them, found any quantity of a fine steel blue pentatomid, *Proxys punctulatus* (P. B.).

Opposite Wharton on the Colorado River we had a real sensation. We were encamped in an open grove overlooking the river, very busy collecting, amongst other things, the Mutillidæ which were especially abundant here, when lo and behold! a herd of zebus came slowly toward us, stopping to graze and apparently not at all surprised or interested in *us*, though you may imagine that we certainly were in them. What magnificent creatures they are, when at large. It seems that we were encamped in the pasture land of a very progressive stock farm, the owner of which, not content with the more ordinary kinds of cattle, had imported these Indian beasts.

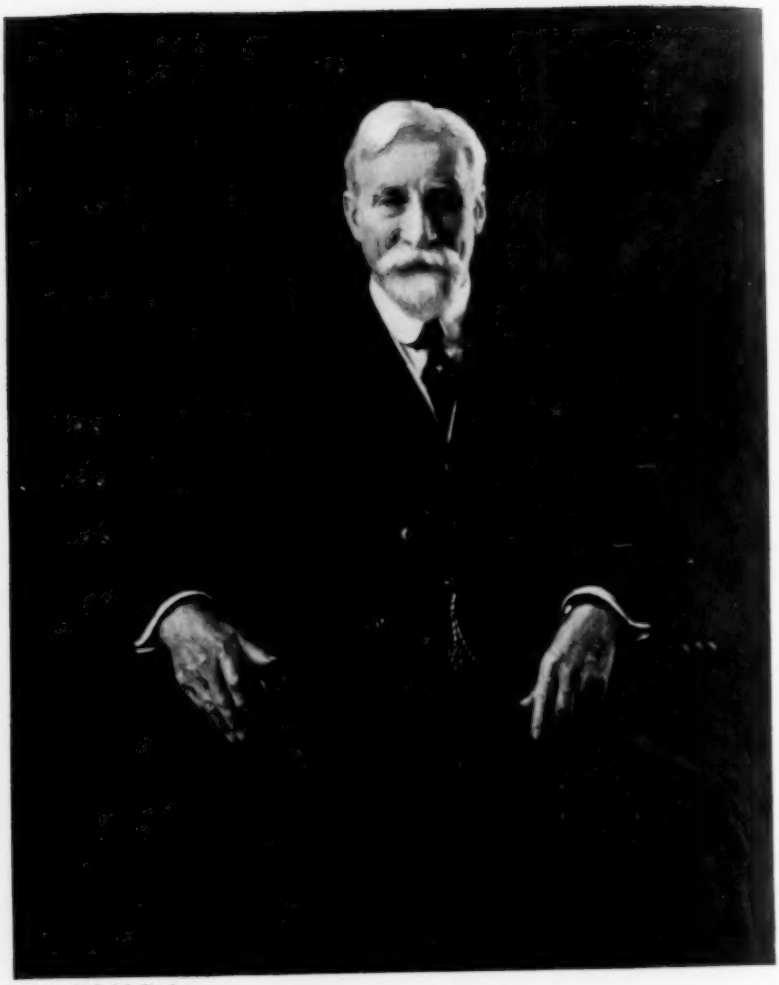
Of the several species of *Mutilla* found here, *orcus* was the most conspicuous, a truly western species. *Comacla simplex*, the lithosiid, was again in the trap lantern, as was *Cobubatha quadrifera*. Knight found the following Cicadidæ: *Tibicen pruinosa, marginalis, superba, viridifascia*. At Victoria we collected *Eresia texana*, not previously in the university collections. There the trap lantern again did good work. Notable among the captures were: *Eubolina impartialis* Harvey, a Texan noctuid not represented in the university collection, nor

even its genus; a crambid of the genus *Thaumatopsis; Tamarrha delliella* Fernald, *Macrotheca flexilinealis* Dyar, a recently described species representing a subfamily of Pyralidæ erected by Barnes and McDunnough, related to Galleriinæ. We took this at New Braunfels and had taken it previously at Wharton. The same is true of *Cobubatha quadrifera* which was also in the catch. A horned toad, the common *Phrynosoma cornutum*, the first that we had seen, was a decided reminder that we were close upon the truly arid regions.

From Victoria northwestward, we travelled along the dividing line, as drawn by Bailey, between the austroriparian and sonoran life zones, that is to say, between the humid and arid divisions of the lower austral. We continually passed extensive undergrowths of mesquite, often miniature forests. Sometimes when this was in flower, it attracted numbers of *Pepsis* and other Hymenoptera. Camping in one of these thickets we were delighted to find a cactus wren building near at hand. Interesting sounds from the mesquite led us to a still hunt for Orthoptera after dark with flashlights, but the singers were exceedingly wary and we had little success. During the night the trap lantern caught: *Yrias crudelis* Grote, a genus and species of Noctuidæ new to the University collection; *Eublemma obliqualis*, a species of noctuid not recognized from the United States when Dyar's list was issued; and *Illice unifascia*. *Ozonadia tenuifascia*, specimens of which we collected the preceding night at Victoria, was until recently supposed to be a variety of this pretty little lithosiid.

Here for the first time we captured one of the whip-tailed lizards, characteristic species of the open desert, and of which we subsequently found many specimens of four species. The one here was *Cnemidophorus gularis*. Here as at Victoria were many Cicadidæ of a species ordinarily identified as *Pacarina signifera* Walker; another species, *Tibicen marginalis*, also occurred at Victoria and *T. superba* at Sutherland Springs near here. At the last-mentioned locality we also found the little erycinid butterfly, *Calephelis perditalis*, which at the time we collected was still new to science, and the large longicorn *Stenaspis solitaria*.

(*To be continued*)



Portrait by Ralph Clarkson

THOMAS CHROWDER CHAMBERLIN

THE PROGRESS OF SCIENCE

PRESENTATION OF THE PORTRAIT OF PROFESSOR CHAMBERLIN

THROUGH the initiative of Professor J. Paul Goode, the colleagues and students of Professor T. C. Chamberlin have presented to the University of Chicago his portrait painted by Mr. Ralph Clarkson. In the course of his presentation address, Professor Bailey Willis said: "Thomas Chrowder Chamberlin is one of the great minds of science and his heart is as great as his mind. Large of stature as he is large of brain, he is a man whose manhood has been proved in every sphere of activity, which called for energy, endurance, and vitality. He carries on to-day vigorously, after seventy-four years of unsparing demand upon his physical powers, and we have every reason to hope that our cherished wish that he may carry on for many years to come will be fulfilled. Chamberlin's purpose has always been constructive. The impulse of the builder has ever been conspicuous in his mental work. It appears at every point of his career, from the time of his young manhood, when he built up the geological survey of Wisconsin, throughout his presidency of Beloit and of the University of Wisconsin, to the constructive period of the University of Chicago, and throughout his activity on innumerable committees of the communities in which he has lived. The constructive purpose stands out as characteristic of the man's nature. In science also his activity has been that of a great builder, although, as fate would have it, he was first obliged to destroy old structures because they stood in the way of the nobler structures which must be built. Chamberlin combines the mentality of the explorer with that of the poet. He possesses in a high degree the power of imagination which distinguishes them both. But he is greater than the explorers of strange lands, even as Columbus was greater than Cortes, in that in him love of adventure is dominated by love of truth; and Chamberlin outsoars the poet in that his imagination rises into realms of truth beyond those reached by a Tennyson or a Browning, yet remains ever conscious of the dominance of eternal law."

In accepting the portrait President Judson spoke of Professor Chamberlin as "one of the founders of the University of Chicago, one of the founders of modern geological thought, one of the founders of the highest schools of intellectual and scientific integrity." On being called upon, Professor Chamberlin spoke of the cooperation of his students and colleagues and said: "The view that stability in the past and great endurance in the future are prime attributes of our planet—that part of creation in which we are participants—is the one tenet about which my affections cling more strongly than any other. It is to me supremely satisfactory that a prolonged study of the earth yields steadily accumulating evidence of fundamental conditions that give a generous outlook for our race. This gives an enlarged value to what we ourselves may do; it is lasting in kind. It is gratifying to feel that adequate time is likely to be given for truth to work

out its good influences in spite of the adverse effects of untruth. If the earth is to pass away in a few thousand years—at least as a habitable globe—the good and bad seem so nearly balanced in this initial stage of our evolution that their equated value is relatively small and the creation of the earth seems scarcely to have been worth while; but if adequate time is to be granted so that the truth may grow and may fully prove itself, and the good triumph over the bad because it is good, the outlook for the future becomes inspiring to the last degree."

THE FOREIGN-BORN POPULATION OF THE UNITED STATES

PROBLEMS of war and reconstruction call special attention at the present time to the foreign born population of the country. It may consequently be desirable to reproduce the diagrams and descriptions published by the Bureau of the Census.

Fig. 1 indicates, by the length of the bars, the number of natives returned at the census of 1910, from each of the foreign countries that were tabulated separately, the countries being arranged in the order of the total number returned. There were 2,501,333 natives of Germany, over three quarters of a million more than was returned from Russia, which stood second. The smallest number returned was 1,736, from Central America.

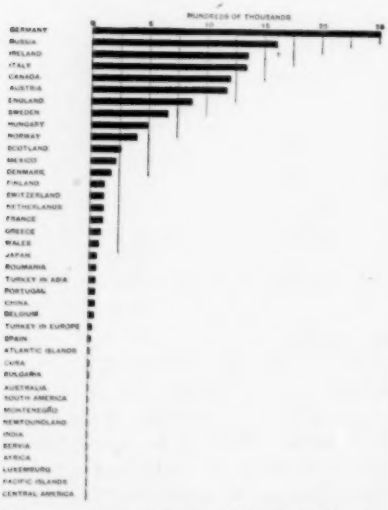


FIG. 1. FOREIGN-BORN POPULATION BY COUNTRY OF BIRTH, 1910.

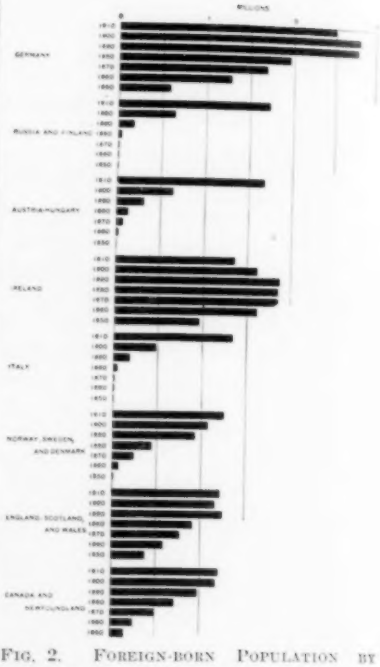


FIG. 2. FOREIGN-BORN POPULATION BY PRINCIPAL COUNTRIES OF BIRTH, 1850–1910.

Fig. 2 shows, by the length of the bars, the number of natives of each of the principal foreign countries that were returned at each census, from 1850 to 1910, the countries being ranked according to the number returned in 1910. The natives of Germany increased in numbers from 1850 to 1900, but in 1910 there was a falling off. There was a comparatively small number of natives of Russia and Austria-Hungary returned at the censuses prior

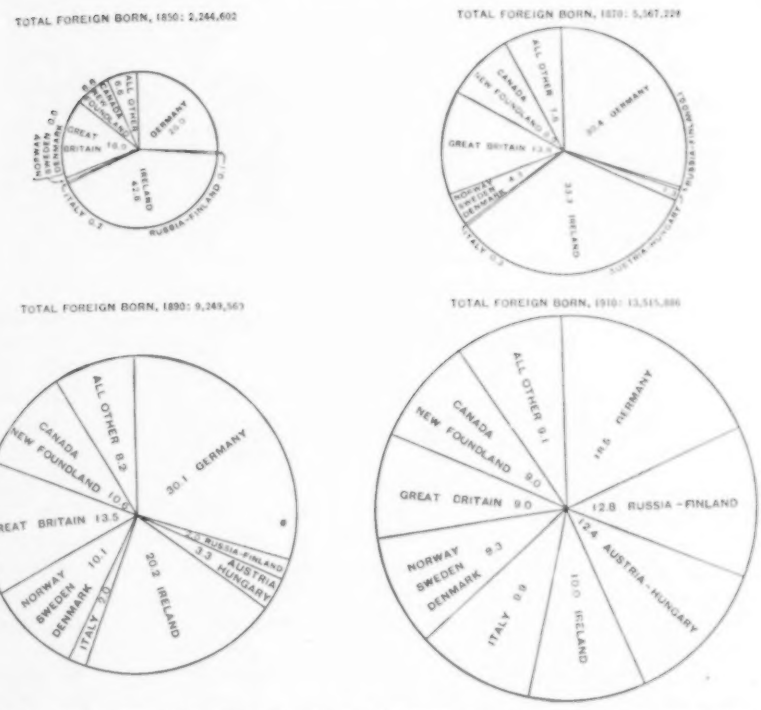


FIG. 3. PER CENT. DISTRIBUTION OF THE FOREIGN-BORN POPULATION BY PRINCIPAL COUNTRIES OF BIRTH, 1850, 1870, 1890, AND 1910.

to 1900. Increasing numbers of Irish are found at each census from 1850 to 1890, when the highest mark was reached; since then the number has steadily decreased. The natives of Italy, like those of Austria-Hungary, came in great numbers to this country between 1890 and 1900, and especially between 1900 1910. Norway, Sweden and Denmark combined have had a constant increase at each census since 1850. Natives of England, Scotland, and Wales increased from 1850 to and including 1890; 1900 showed a slight decrease from the previous enumeration, but in 1910 an increase over the 1900 census was reported. The natives of Canada and Newfoundland increased at each enumeration from 1850 to 1910, although the increase from 1900 to 1910 was small.

In Fig. 3 the four circles are proportionate in size to the total foreign-born population returned at the censuses of 1850, 1870, 1900 and 1910. The divisions of each circle present the percentage of distribution of the foreign-born population by principal countries of birth. In 1850 the natives of Ireland (42.8 per cent.), Germany (26 per cent.) and Great Britain (16.9 per cent.) formed 85.7 per cent. of the foreign-born population. In 1870 the same countries furnished 77.5 per cent. Germany increased its proportion and was nearly equal to the Irish, the percentage being 33.3 for Ireland against 30.4 for Germany. In 1890 the Germans outnumbered the Irish at the rate of 30.1 to 20.2. In 1810 Germany was again the country furnishing a larger proportion than any other, with 18.5;

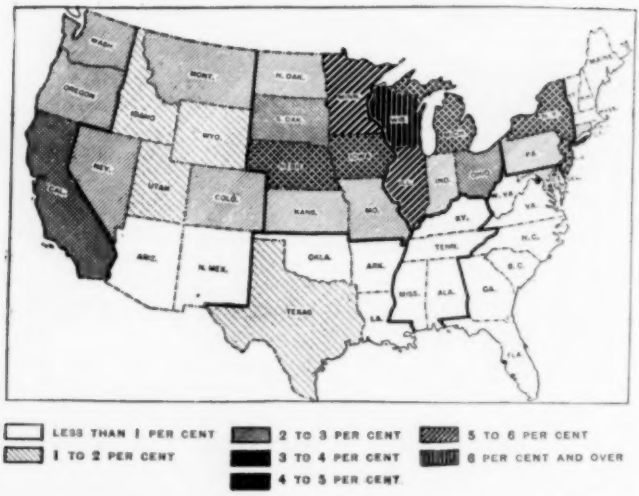


FIG. 4. PER CENT. OF GERMAN-BORN POPULATION IN EACH STATE; 1910.

Russia and Finland, with 12.8 per cent., and Austria-Hungary, with 12.4 per cent., were second and third, respectively, Ireland having fallen to the fourth place, with 10 per cent., and being about equal to Italy with 9.9 per cent.

Fig. 4 shows the percentage of the population of each state, at the census of 1910, born in Germany. The Germans form a larger proportion of the total population of Wisconsin (10 per cent.) and Illinois (5.7 per cent.) than of any other state.

The figures so far given refer only to the foreign born, but we are also concerned with natives of foreign parentage, and the natives of mixed parentage—that is, one parent foreign born and one parent native. Fig. 5 presents the foreign white stock by principal countries of origin, for 1910, in these three classes. The largest number was from Germany, the bar being shaded to indicate first the number born in Germany; second, the number born in this country, both parents born in Germany; and third, the native with one parent born in Germany and the other in

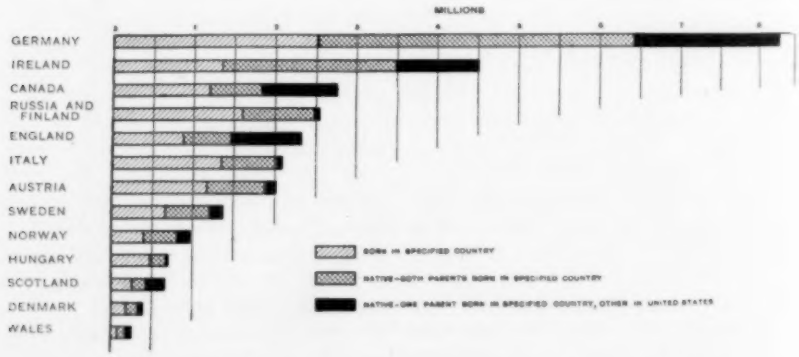


FIG. 5. FOREIGN STOCK BY PRINCIPAL COUNTRIES OF ORIGIN, 1910.

the United States. The same designations are carried out through all the bars. One peculiarity will be noticed in the bars for the countries which have only recently begun to send large numbers of their natives to the United States. Of Germany, Ireland, Canada and England, the foreign white stock includes a large number of one parent born in the specified country and one in the United States. The bar for Russia and Finland, as well as those for Italy, Austria and Hungary, have a very small proportion in this class.

THE USE OF HELIUM FOR AIRSHIPS

AN article in *Nature* states that shortly after the commencement of the war it became evident that if helium were available in sufficient quantities to replace hydrogen in naval and military airships, the losses in life and equipment arising from the use of hydrogen would be enormously lessened. Helium, as is known, is most suitable as a filling for airship envelopes, in that it is non-inflammable and non-explosive, and, if desired, the engines may be placed within the envelope. By its use it is also possible to secure additional buoyancy by heating the gas (electrically or otherwise), and this fact might possibly lead to considerable modifications in the technique of airship maneuvers and navigation. The loss of gas from diffusion through the envelope is also less with helium than with hydrogen, but, on the other hand, the lifting power of helium is about 10 per cent. less than that of hydrogen.

Proposals had been frequently put forward by men of science regarding the development of supplies of helium for airship purposes, but the first attempt to give practical effect to these proposals was initiated by Sir Richard Threlfall, who received support from the Admiralty through the Board of Invention and Research.

It was known that supplies of natural gas containing helium in varying amounts existed in America, and it became evident from the preliminary investigations as to cost of production, transportation, etc., that there was substantial ground for believing that helium could be obtained in large quantities at a cost which would not be prohibitive. In the course of the investigations, which were carried out with the cooperation of L'Air Liquide Co., it was found that large supplies of helium were available in Canada, which could be produced at a cost of about one shilling per cubic foot.

In the summer of 1917, when the United States of America had entered the war, and after the investigations referred to above were well under way, proposals were made to the Navy and Army and to the National Research Council of the U. S. A. to cooperate by developing the supplies of helium available in the United States. These were made, on behalf of the Admiralty, through the Board of Invention and Research by Sir Ernest Rutherford and a special Commission consisting of Commander Bridge, R.N., Lieutenant-Colonel Lowcock, and Professor John Satterly.

The authorities cited agreed to cooperate with vigor in supporting these proposals, and large orders were at once placed by them with the Air Reduction Co. and the Lynde Co. for plant, equipment, cylinders, etc. The Bureau of Mines also cooperated in developing a new type of rectifying and purifying machine. By July, 1918, the production of helium in moderate quantities was accomplished, and from that time onward the possibility of securing large supplies of helium was assured.

Concurrently, all practical details of the production of helium-borne airships and of the navigation of this type of craft were developed by the airship production section of the Navy. At the same time, under the direction of Professor McLennan, plans were prepared and steps taken to erect and equip a station for purifying the helium which might become contaminated in service. Experimental investigations were also initiated with the object of developing the possible technical and scientific uses of helium. In particular, balance and spectroscopic methods for testing the purity of the gas were worked out, studies on the relative permeability of balloon fabrics to hydrogen and helium were commenced, and experiments were begun to exploit the use of helium in gas-filled incandescent lamps, gas-filled arc lamps, and thermionic valves. The equipment provided for the purification of contaminated helium in large quantities supplied the major portion of the apparatus required to liquefy helium, and arrangements were therefore made to produce this gas in a liquid form.

The advances already made by the time the armistice commenced warrants the opinion that at the end of another year large supplies of helium would have been produced within the empire at a low cost, helium-filled aircraft would have been in service, and great progress would have been made in exploiting the technical and scientific uses of this gas.

SCIENTIFIC ITEMS

WE record with regret the death of Charles Leander Doolittle, Flower professor of astronomy, emeritus, at the University of Pennsylvania and director of the Flower Obervatory; of John Wallace Baird, professor of experimental psychology in Clark University; of Captain Theodore de Booy, the archeologist and explorer; of G. Carey Foster, formerly principal of University College, London, and previously professor of physics there, and of R. A. E. Blanchard, professor of parasitology in the faculty of medicine, University of Paris.

DR. WILLIAM WILLIAMS KEEN, the distinguished surgeon, had conferred on him the honorary degree of Doctor of Laws by the University of Pennsylvania on University Day. Dr. Keen is the only commissioned officer in the present war who was a commissioned officer during the Civil War.—Dr. Livingston Farrand has resigned the presidency of the University of Colorado to become the executive head of the American Red Cross. Dr. Farrand was formerly professor of anthropology at Columbia University.

THE work on volcanology at Kilauea has been placed under the U. S. Weather Bureau. The transfer was effective on February 15 and the appointment of the Director Professor T. A. Jaggar has been approved. An appropriation of $10,000 for the year is made by the government for continuing the work heretofore maintained by the Volcano Research Association.